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Report of the 1986 Municipal Solid Waste Management Survey

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REPORT OF THE 1986 MUNICIPAL SOLID WASTE MANAGEMENT SURVEY

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Michael Stone
Economist
Planning and Assessment Branch
Ministry of Environment and Parks

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CHAPTER ONE
INTRODUCTION

1.1 PURPOSE AND OUTLINE OF THE REPORT

The purpose of this report is to present the results of the Municipal Solid Waste Management Survey. The survey was undertaken in order to determine the current quantities of solid wastes collected, recycled and disposed of by incorporated municipalities and regional districts in British Columbia during 1986. In addition the costs and labour requirements associated with solid waste management were collected as was information on the source and composition of the solid wastes. The survey results will be used to assess current provincial solid waste management policies and to develop future policy options. The information collected may also be of use to municipal engineers and planners in formulating their own waste management plans.

Chapter Two reviews the collection of solid wastes by municipalities and regional districts. The chapter details who collected solid waste, how much was collected, how frequently it is collected and from where it was collected. Also discussed are the sources of the wastes, the composition of the waste material, plus the equipment and manpower necessary for collection.

Chapter Three discusses the recycling programs offered by some local governments. The discussion includes the number of recycling programs, the type of program, the number of depots used and the number of households served by curbside pickup of recyclables. In addition an admittedly incomplete picture of the type, quantity and price of materials collected for recycling is presented.

Chapter Four reviews how local governments dispose of their solid wastes which may be by landfilling, incineration or other method. Included is a discussion of tne total weight of solid wastes disposed of, the number

and type of disposal sites and the source of the wastes. In addition the tipping fees charged at the disposal sites plus the labour requirements and discussed.

Chapter Five presents the costs of solid waste management in British Columbia during 1986. Reviewed in turn are the costs of collection, recycling and disposal of the solid waste. A comparison of solid waste management to other Canadian provinces is also given.

1.2 THE SURVEY DESIGN

In 1986 there were 172 incorporated municipalities and regional districts in British Columbia providing a varied selection of services to their citizens (Ministry of Municipal Affairs, 1987a). In order to determine the solid waste practices of these local governments a questionnaire was developed in cooperation with the staff of the Ministry of Environment and Parks' Waste Management Branch. The survey questionnaire was sent to all local governments with a covering letter explaining the purpose of the survey and requesting their assistance in providing the necessary information. A copy of the questionnaire and covering letter are attached as Appendix A.

The questionnaires were mailed out on August 4, 1987 and a total of 129 responses have been received for a response rate of 75%. The response rate by type of local government is detailed in Table 1-1. The 107 municipalities responding represent 2,210,258 people or 76.5% of the total B.C. population during 1986. The 22 regional districts responding represent 2,657,837 people or 92% of tne total B.C. population. A complete list of respondents is given in Appendix B, Table B-1.

TABLE 1-1
SURVEY RESPONSE RATES

JURISDICTION TYPE	TOTAL NUMBER*	SURVEY RESPONDENTS	RESPONSE RATE (%)
Regional District	28	22	79
City	37	30	81
District Municipality	48	35	75
Town	12	12	100
Village	47	30	64
TOTAL	172	129	75

* Source: British Columbia, Ministry of Municipal Affairs, Statistics Relating to Regional and Municipal Governments in British Columbia 1986.

CHAPTER TWO
COLLECTION OF MUNICIPAL SOLID WASTES

2.1 THE PROVISION OF COLLECTION SERVICES

The provision of solid waste collection services is by and large a municipal responsibility. As shown in Table 2-1 87 of the 107 responding municipalities had responsibility for solid waste collection while only 3 of the 22 responding regional districts had responsibility in that area. In addition, the 3 regional districts providing collection services did so only for their unincorporated electoral areas. Of the 90 jurisdictions responsible for waste collection 87 reported the number of households served as shown in column three of Table 2-1. The 540,279 households served represent only 49% of the 1,096,101 occupied private dwellings in British Columbia reported by the 1986 census. One reason for the small portion of total private occupied dwellings being served is that in urban areas apartment dwellers are typically served by private operators and not by the municipalities.

Also included in Table 2-1 is the location from which the household's solid wastes are collected, either at the curbside, from the backyard, or in some cases a mixture of both curbside and backyard collection is used within a jurisdiction. While curbside collection was the method used by most jurisdictions it had a smaller share of the total number of households served with 53%. Backyard collection was received by 31% of households while 16% of households were in jurisdictions which had a combination of backyard and curbside collection.

The number of solid waste collections households received per year is given in Table 2-2 which shows that weekly collection was almost universally used. Only five municipalities reported collection frequencies outside of the 50-52 collections per year range.

TABLE 2-1
LOCAL GOVERNMENTS PROVIDING WASTE COLLECTION SERVICES

JURISDICTION TYPE	TOTAL SURVEY RESPONDENTS	PROVIDED COLLECTION SERVICES	HOUSEHOLDS SERVED*	LOCATION OF WASTE COLLECTION		
				CURBSIDE	BACKYARD	MIXTURE
Regional District	22	3	6,085	3	0	0
City	30	28	278,216	12	5	11
District Municipality	35	25	232,682	20	3	2
Town	12	10	14,053	8	0	2
Village	30	24	9,243	19	2	3
TOTAL	129	90	540,279	62	10	18

* Based on 87 respondents

TABLE 2-2
FREQUENCY OF COLLECTION SERVICES

JURISDICTION TYPE	COLLECTION FREQUENCY PER YEAR						
	29	34	50	52	65	72	104
Regional District				3			
City			7	21			
District Municipality	1	1	3	18		1	
Town				10			
Village				22	1		1
TOTAL	1	1	10	74	1	1	1

Respondents to the Question = 89

2.2 QUANTITY OF SOLID WASTES COLLECTED

Only 51 of the 90 jurisdictions responsible for solid waste collection were able to specify the total weight of the solid wastes collected during 1986. The 51 jurisdictions served a total of 464,984 households. Of these 51 jurisdictions only 14 actually weighed their solid wastes with the remaining 37 reporting estimated weights only. The results are reported in Table 2-3. The total weight given in the table is undoubtedly a substantial underestimate of the quantity of municipal solid wastes generated in British Columbia. Not only are jurisdictions not all reported but many that are do not collect wastes from commercial and industrial sources in their community, and many others do not collect from apartment buildings. A better estimate of the total quantity of solid wastes generated in the province is given in Chapter Four, Disposal of Municipal Solid Wastes.

Also included in Table 2-3 are the average, maximum and minimum quantity of wastes collected per capita for each population group. As shown there was a wide variation in the per capita collection rates. This is partly due to the majority of jurisdictions not weighing their wastes and partly due to the differences in the coverage of collection between jurisdictions. Other factors such as household income, climate and average housenold size would also affect the per capita rates.

2.3 METHOD OF SOLID WASTE COLLECTION

Municipalities were asked to specify what percentage of their total solid wastes were collected by each of four methods; by municipal employees, by a private contractor for the municipality, by a private contractor for the households or by delivery by the households themselves. Table 2-4 reports the number of jurisdictions using each of the collection methods during 1986. Note that a jurisdiction could have used more than one collection method. At the bottom of the table is given the percentage distribution of the total weight of the solid waste collected by each method. This shows that while quite a few jurisdictions used collection by

TABLE 2-3
REPORTED QUANTITY OF MUNICIPAL SOLID WASTES COLLECTED

POPULATION GROUP	NUMBER OF MUNICIPALITIES	TOTAL POPULATION	TOTAL WASTES COLLECTED (tonnes)	WASTE PER CAPITA (Tonne/person)		
				AVERAGE	MAXIMUM	MINIMUM
> 100,000	3	757,755	282,180	0.37	0.65	0.28
50,000 - 100,000	8	540,200	249,865	0.46	0.81	0.18
20,000 - 49,999	7	235,653	73,560	0.31	0.74	0.12
10,000 - 19,999	12	168,360	317,758	0.93*	1.64	0.23
5,000 - 9,999	3	23,924	54,360	0.81**	1.06**	0.51
1,000 - 4,999	14	36,621	27,405	0.75	1.26***	0.05
< 1,000	4	3,015	2,260	0.75	1.94	0.23
TOTAL	51	1,765,528	1,007,388	0.57	1.94	0.05

* Excludes Williams Lake commercial and industrial wastes of 160,940 tonnes.

** Excludes Merrit.

*** Excludes Cache Creek.

TABLE 2-4
METHOD OF SOLID WASTE COLLECTION

JURISDICTION TYPE	SOLID WASTE COLLECTION METHOD USED				TOTAL RESPONDENTS
	Municipal Employees	Contractor With Municipality	Contractor With Household	Household Delivery	
Regional District	1	2	0	1	3
City	18	14	2	4	28
District Municipality	15	9	7	6	25
Town	4	6	1	1	10
Village	18	7	1	6	24
TOTAL	56	38	11	18	90
Percent of Total* Weight Collected	43.5%	46.0%	8.9%	1.6%	100%

* Based on 51 respondents.

private contractor for the household and by household delivery, relatively little of the total wastes was collected by these methods. Instead collection by municipal employees and by private contractor for the municipality are the major methods.

2.4 SOURCE OF THE SOLID WASTES

Respondents were asked what percentage of the total solid wastes collected in their jurisdictions during 1986 came from residential, commercial, industrial and other sources. The results are presented in Table 2-5. The first column gives the average percentage given for each source by the 75 respondents to the question. The second column gives the average based on the total weight of wastes collected that could be assigned to each source. Note that the weighted average is based on only 45 respondents who both answered the source question and the total weight question. In addition many jurisdictions could not separate their commercial and industrial sources. In such cases the combined source percentage was included in the commercial source category. Thus the proportion attributable solely to industrial sources is unquestionably an underestimate of the true proportion.

2.5 COMPONENTS OF THE SOLID WASTES COLLECTED

Knowledge of the composition of the material in the municipal solid waste stream is particularly important as it will in part determine how effective alternative disposal techniques will be in reducing the quantity of material being landfilled. The type and quantity of material in the solid wastes will determine the BTU content of the wastes for an energy from wastes project, the types and quantities of materials available for a resource recovery project and how effective a source separation program will be in reducing total wastes. The survey asked respondents to list the percentage composition of their wastes in eight categories as shown in Table 2-6. Only 30 respondents were able to do so and none had actually undertaken special waste composition studies. The first column gives the average

TABLE 2-5
SOURCE OF MUNICIPAL SOLID WASTES COLLECTED

SOURCE	AVERAGE DISTRIBUTION (%)	WEIGHTED AVERAGE DISTRIBUTION* (%)	TOTAL WEIGHT* (TONNES)	JURISDICTION REPORTING AS SOURCE
Residential	72	72	479,952	75
Commercial	24	23	156,803	72
Industrial	3	4	26,086	21
Other	1	1	4,358	8
TOTAL	100	100.0	667,198	N/A

Respondents to the question = 75

* Excludes Williams Lake commercial and industrial quantities. Based on 45 respondents.

TABLE 2-6
COMPONENTS OF MUNICIPAL SOLID WASTES COLLECTED

WASTE CATEGORY	AVERAGE DISTRIBUTION (%)	WEIGHTED AVERAGE DISTRIBUTION* (%)	TOTAL WEIGHT* (TONNES)	MAXIMUM REPORTED (%)	MINIMUM REPORTED (%)
Paper	36	41.5	72,910	85	1
Glass	9	8.2	14,352	25	1
Ferrous Metals	6	7.6	13,345	15	0
Non-Ferrous Metals	5	1.4	2,447	40	0
Plastics	11	8.0	14,136	40	1
Organics	22	23.0	40,446	65	0
Construction Material	6	5.9	10,379	15	0
Other Material	4	4.3	7,592	20	0
TOTAL	100	100.0	175,607	-	-

Respondents to the question = 30

* Based on 16 respondents.

percentage assigned to each category while the second column gives a weight average based on the total weight of the solid wastes collected. This latter column is based on only 16 respondents. Included in the last two columns are the maximum and minimum percentages reported for each category and as can be seen there is a wide variation in the answers.

In Table 2-7 the average percent composition and the weighted average percent composition are compared to the results of actual composition studies carried out across Canada in 1976 and to one in Washington State in 1986 (Bird anbd Hale Ltd. et al, 1979 and Matrix Management Group et al, 1987 respectively). The survey results are surprisingly similar to the results of studies where the wastes were actually sampled and classified. However, the detail available in the composition studies such as breakdown of total paper and organic material is unavailable from the survey results. While the survey results are similar to other study results there can be no quarantee that the survey results, which are based on personal estimates of the respondents, accurately reflect the current content of the British Columbia waste stream.

2.6 COLLECTION EQUIPMENT AND LABOUR REQUIREMENTS

Included in the survey were questions on the type, number and capacity of the vehicles used by the jurisdictions to collect their solid wastes. The results are presented in Table 2-8. Almost half of the vehicles used and over half of the total reported capacity were accounted for by rear loading packers. Side loading packers were the next major vehicle type used followed by front loading packers. The remaining vehicle types accounted for relatively little amount of total reported capacity. The ten jurisdictions which had responsibility for collection but did not indicate their vehicle collection equipment were serviced by a private contractor with the municipality.

TABLE 2-7
COMPARISONS TO OTHER MUNICIPAL SOLID WASTE COMPOSITION STUDIES

WASTE COMPONENT	PERCENTAGE OF MUNICIPAL SOLID WASTES				
	B.C. 1986 (a)	B.C. 1986 (b)	B.C. 1976 (c)	CANADA 1976 (d)	WASH. STATE 1986 (e)
1. Total Paper	36	41.5	37.9	42.3	40
Newsprint			11.1	9.7	6
Corrugated Paper			6.9	10.1	10
Other Paper			19.8	22.5	24
2. Glass	9	8.2	7.8	6.7	6
3. Ferrous Metals	6	7.6	7.2	6.3	4
4. Non-Ferrous Metals	5	1.4	0.5	0.7	1
5. Plastics	11	8.0	5.4	5.5	9
6. Total Organic Material	22	23.0	24.7	26.0	35
Food			17.4	20.7	12
Yard and Garden Waste			7.3	5.3	23
7. Construction Material	6	5.9	8.5	6.0	
8. Other Material	4	4.3	8.2	6.6	5

Source: a. Column 1 Table 2-6
b. Column 2 Table 2-6
c. Bird and Hale Ltd. et al, 1979.
d. Bird and Hale Ltd. et al, 1979.
e. Matrix Management Group et al, 1987.

TABLE 2-8

MUNICIPAL SOLID WASTE COLLECTION EQUIPMENT

VEHICLE TYPE	NUMBER USED	AVERAGE CAPACITY (cu. yds.)	TOTAL CAPACITY (cu. yds.)
Rear Loading Packer	129	22.79	2,872
Side Loading Packer	73	18.87	1,283
Front Loading Packer	38	27.67	914
Stake Truck	5	27.60	138
Pick Up Truck	11	3.67	33
Other	21	21.95	439
TOTAL	277	n.a.	5,679

Respondents to the question = 80

* Based on 72 respondents.

Only 73 of the 90 respondents responsible for collection reported their solid waste collection labour requirements. As with the collection equipment question the majority who did not answer the question had their wastes collected by a private operator contracted to the municipality. The results for those who did answer are given in Table 2-9. The results given unquestionably underestimate the labour requirements for solid waste disposal in British Columbia. Not only does it not include private operators contracted to municipalities, but also the many commercial haulers who collect from commercial sites, industrial sites and from private households.

TABLE 2-9

MUNICIPAL SOLID WASTE COLLECTION LABOUR REQUIREMENTS

LABOUR CATEGORY	MAN YEARS	PERCENT OF TOTAL
Management	44.3	8.9
Administration	31.1	6.3
Vehicle Operators	230.4	46.4
Labourers	190.4	38.4
TOTAL	496.2	100.0

Respondents to the question = 73

CHAPTER THREE
RECYCLING OF MUNICIPAL SOLID WASTES

3.1 RECYCLING PROGRAMS

Only 31 of the 129 responding jurisdictions had recycling programs operating within their boundaries during 1986. Recycling programs can be divided into two types; those that operate community depots where households bring their source separated recyclables and those that operate curbside pickup of household source separated recyclables. Some programs do offer both types of service. The curbside programs are usually found in high density residential areas where the volume of recyclable material offsets the added labour costs of curbside collection.

As shown in Table 3-1 a total of 22 jurisdictions had recycling programs with depot operations while 14 jurisdictions had programs offering curbside pickup. Of these totals, 4 programs offered both depots and curbside pickup. The curbside collection programs served a total of 153,677 households or 14% of the 1,096,101 total households in British Columbia during 1986. Of the 31 recycling operations reported, 28 of them are operated by private operators/societies, 2 by the jurisdiction and 1 by both a private operation and the jurisdiction.

3.2 MATERIALS COLLECTED FOR RECYCLING

Only 23 of 31 jurisdictions with recycling operations were able to indicate the type of materials collected. As shown in Table 3-2 all of the reporting jurisdictions collected paper, mainly newsprint, over half collected glass, while less than half collected ferrous metals and less than one third collected non-ferrous metals (i.e. aluminum). Only 17 jurisdictions were able to report the quantity of materials collected during 1986 so the quantities given in Table 3-2 underestimate the volume of materials recovered. The final column of the table gives the price range received by

TABLE 3-1
COMMUNITY RECYCLING PROGRAMS

JURISDICTION TYPE	HAD RECYCLING PROGRAMS	USED DEPOTS	TOTAL DEPOTS	USED CURBSIDE COLLECTION	TOTAL HOUSEHOLDS SERVED
Regional District	4	3	17	1	5,000
City	12	7	21	7	22,261
District Municipality	13	10	137	6	126,416
Town	2	2	2	0	0
Village	0	0	0	0	0
TOTAL	31	22	177	14	153,677

TABLE 3-2
MATERIALS RECYCLED FROM MUNICIPAL SOLID WASTES

RECYCLED MATERIAL	COMMUNITIES RECYCLING	COMMUNITIES REPORTING QUANTITY*	TOTAL REPORTED QUANTITY* (Tonnes)	PRICE RANGE ($/Tonne)
Paper	23	17	11,317	5 - 75
Glass	16	11	2,082	15 - 54
Ferrous Metals	10	8	2,068	7 - 33
Non-Ferrous Metals	7	5	53	198 - 380
Other	4	4	858	7 - 78
TOTAL	N/A	N/A	16,378	n.a.

Respondents to the question = 23

* Based on 17 respondents

the recycling operations for the material collected. Within each material category a wide range of prices was received. Reasons for the variations include differences in the quality of the material collected, for example high grade paper, mixed paper or newsprint, differences in the preparation of the materials, for example if the glass has been colour sorted or not, plus differrences in transportation costs. Non-ferrous metals, notably aluminum, receives a very high price relative to the other recyclable materials.

CHAPTER FOUR
DISPOSAL OF MUNICIPAL SOLID WASTES

4.1 THE PROVISION OF DISPOSAL SERVICES

Regional districts had a great deal more involvement in the provision of disposal services than they had for collection services. Table 4-1 shows that 20 of 22 responding regional districts were responsible for the disposal of some or all of the solid wastes produced in their jurisdiction while only 3 reported having responsibility for collection. The reverse is true for municipalities. Only 50 of the 107 responding municipalities reported responsibility for solid waste disposal while 87 had responsibility for collection. Also shown in Table 4-1 are the total weight of the solid wastes disposed of during 1986 as reported by 42 respondents. Over half of the total weight is reported by cities, however this figure is somewhat misleading due to inclusion of Vancouver City's results of 670,000 tonnes. Vancouver City operates the Burns Bog landfill which accepts and disposes of the solid wastes from several other lower mainland municipalities.

4.2 TOTAL MUNICIPAL SOLID WASTES ESTIMATES

It would be desirable at this point to provide estimates of the total quantity of municipal solid wastes generated in British Columbia during 1986. To do this a precise definition of municipal solid wastes is required. For the purposes of this section municipal solid wastes will be defined as solid wastes from any source which enters either the collection or disposal systems operated by municipalities or regional districts in British Columbia. The use of this definition means that any at source recycling of wastes prior to collection will be excluded from the solid waste total. Similarily industrial or commercial wastes disposed of on site or at their own disposal facility are also excluded. For example, the wood processing industries generate vast quantities of wood wastes, much of which is used as fuel or incinerated on site.

TABLE 4-1
LOCAL GOVERNMENTS PROVIDING SOLID WASTE DISPOSAL SERVICES

JURISDICTION TYPE	TOTAL SURVEY RESPONDENTS	PROVIDED DISPOSAL SERVICES	REPORTED WEIGHT DISPOSED*
Regional District	22	20	339,604
City	30	15	961,969
District Municipality	35	20	343,476
Town	12	4	6,000
Village	30	11	7,999
TOTAL	129	70	1,659,048

* Based on 43 respondents

An estimate of the total quantity of municipal solid wastes generated during 1986 cannot be directly obtained because not all jurisdictions responded to the survey and not all that did respond were able to provide the quantities of municipal solid wastes collected and disposed of during 1986. Instead an estimate was calculated in the three stages for each regional district as shown in Table 4-2. First the reported weights of disposed solid wastes within each regional district was summed as shown in the first column. Some adjustment of the reported solid wastes disposed of was necessary to account for some double counting and for some partial year figures reported resulting in a minor difference between the total reported in column one and the total reported disposal weight given n Table 4-1. Next the reported collection weights were summed for jurisdictions which reported collection weights but not disposal weights as shown in column two of Table 4-2. Finally, where neither collection or disposal weights were available an estimate based on the jurisdictions' 1986 population and an estimated solid waste generation rate of 0.65 tonnes per year was used as shown in column three. The total estimated quantity of municipal solid wastes for each regional district are given in column four which sums to a 1986 provincial total of 2.13 million tonnes.

Table 4-3 presents forecasts for the potential growth in British Columbia's municipal solid wastes. The forecasts are based on the population growth over the 1986 level multiplied by a per capita generation rate of 0.65 tonnes per annum and adding this total to the 1986 total quantity of 2.13 million tonnes. This approach, while simplistic, does emphasize the potential increases in total solid wastes due to population growth alone. Other factors could also play a significant role. For example, increases in average personal income or in the amount of packaging material used could cause an increase in the per capita solid waste generation rate. Unfortunately, evaluation of the effects these other factors may have on average solid waste production is beyond the scope of this report.

TABLE 4-2
ESTIMATED TOTAL MUNICIPAL SOLID WASTES QUANTITIES BY REGIONAL DISTRICT 1986
(Tonnes)

REGIONAL DISTRICT	DISPOSAL REPORTED	COLLECTION REPORTED	POPULATION BASED*	TOTAL SOLID WASTES
Alberni-Clayoquot	-	1,000	18,739	19,739
Bulkley-Nechako	195	8,235	17,164	25,594
Capital	165,000	-	-	165,000
Cariboo	1,284	173,940	30,890	206,114
Central Coast	-	-	2,028	2,028
Central Fraser Valley	73,693	-	-	73,693
Central Kootenay	30,000	-	-	30,000
Central Okanagan	60,000	-	18,536	78,536
Columbia-Shuswap	22,464	-	-	22,464
Comox-Strathcona	29,470	-	-	29,470
Cowichan Valley	26,738	-	-	26,738
Dewdney-Alouette	35,691	-	-	35,691
East Kootenay	25,000	-	24,177	49,177
Fraser-Cheam	33,000	-	8,828	41,828
Fraser-Fort George	55,000	-	14,115	69,115
Greater Vancouver	878,266	-	-	878,266
Kitimat-Stikine	14,700	845	17,977	33,522
Kootenay Boundary	7,500	-	-	7,500
Mount Waddington	9,125	1,300	4,541	14,966
Nanaimo	26,635	-	3,788	30,423
North Okanagan	-	-	35,633	35,633
Okanagan-Similkameen	-	17,500	23,076	40,576
Peace River-Liard	43,500	-	19,273	62,773
Powell River	12,500	-	-	12,500
Skeena-Queen Charlotte	16,320	-	3,755	20,075
Squamish-Lillooet	7,647	-	5,027	12,674
Sunshine Coast	10,000	-	-	10,000
Thompson-Nicola	96,069	-	-	96,069
TOTAL	1,679,797	202,820	247,547	2,130,164

* Calculated using a 650 Kg. per capita generation rate

TABLE 4-3
BRITISH COLUMBIA MUNICIPAL SOLID WASTE FORECASTS

YEAR	B.C. POPULATION FORECAST*	MUNICIPAL SOLID WASTE FORECAST (Tonnes)
1987	2,941,842	2,164,377
1988	2,978,969	2,188,509
1989	3,018,613	2,214,278
1990	3,061,324	2,242,040
1991	3,104,590	2,270,163
1992	3,147,829	2,298,268
1993	3,190,829	2,326,218
1994	3,233,747	2,354,115
1995	3,277,152	2,382,328
1996	3,320,972	2,410,811
.	.	.
.	.	.
2001	3,554,678	2,562,720
.	.	.
.	.	.
2006	3,820,788	2,735,692

* Source: Central Statistics Bureau P.E.O.P.L.E. Projection 13.

4.3 SOURCE OF THE SOLID WASTES

As was done for the collection of solid wastes the survey contained a question regarding the source of the solid wastes disposed. The results are given in Table 4-4. The average percentage distribution given in column one is very similar to the collection distribution. However, the weighted average distribution given in column two is considerably different. As with the question on the source of wastes collected most respondents were unable to break down their commercial and industrial wastes into separate categories. Thus, the commercial component contains much of what should be classified as industrial. Also in many areas apartment wastes are collected by private haulers and these wastes have in many cases been included in the commercial category. The final column of the table gives the number of jurisdictions reporting the disposal of wastes from each source.

4.4 THE METHOD OF DISPOSAL

Only 7 jurisdictions reported using a solid waste disposal method other than landfilling. Table 4-5 reports the number of responding jurisdictions using each disposal method, the weight disposed of by that method and the percentage of total solid wastes reported. In addition there are two other municipalities which did not respond to the survey who also incinerate their wastes. As shown in the table, virtually all wastes are disposed of by landfill with only a small portion, approximately 1%, disposed of by other means. However, the disposed quantity reported does not include the 16,378 tonnes of recyclable materials reported collected in Chapter Four which, if added to the total disposal weight, would represent a further 1% diversion. This picture will change substantially with the completion of the Greater Vancouver Regional District's waste-to-energy incineration plant in Burnaby and their resource recovery plant in Coquitlam which are planned to process 210,000 tonnes and 225,000 tonnes per year, respectively. The resource recovery plant is expected to divert 10 to 50% of its throughput from the waste stream.

4.5 LANDFILL SITES IN BRITISH COLUMBIA

From the files of the Waste Management Branch, the number of permitted landfills was determined as was the daily rate of discharge and the estimated remaining service life of the landfills. Currently there are 236 licenced landfill sites in British Columbia with a permitted disposal rate of 3,707 tonnes or 8,215 cubic meters per day. On an annual basis the permitted disposal rate sums to 874,757 tonnes per year which is only half of the total reported weight disposed of during 1986 as shown in Table 4-1. A frequency distribution of the remaining life service of the landfill sites is given in Table 4-6. For each year group, the table shows the number of landfill sites which will come to the end of their service life and the percent and cumulative percent of the total landfill sites. Also included are the permitted daily disposal volumes for the landfills in each category along with the percent and cumulative percent of the total daily disposal volume. The table snows tnat 123 sites or 60% of total permitted landfills are scheduled to close over the next ten years.

The tipping fees, if any, charged at 101 landfill sites was determined from the survey. Table 4-7 gives a frequency distribution of the tipping fees. Only 13 landfill sites had a tipping fee with disposal being free at the remaining 88. By not charging a tipping fee, the costs of waste disposal will not be passed onto the waste generator but rather are borne by the landfill operator. Thus, the landfill operator is subsidizing the waste generators disposal costs. In addition, the waste generator will have no incentive to either reduce his waste production or to find an alternative disposal method.

4.6 INCINERATION OF WASTE IN BRITISH COLUMBIA

Incineration of solid wastes can lead to volume reductions of over 90% for combustible materials. At least four municipalities and one regional district operated refuse incinerators in British Columbia during 1986. Incinerators are located at Port Alice, Powell River, Tumbler Ridge and

TABLE 4-4
SOURCE OF MUNICIPAL SOLID WASTES DISPOSED

SOURCE	AVERAGE DISTRIBUTION (%)	WEIGHTED AVERAGE DISTRIBUTION* (%)	REPORTED WEIGHT* (tonnes)	JURISDICTIONS REPORTING AS SOURCE
Residential	70	48.1	635,161	51
Commercial	24	46.9	619,370	49
Industrial	5	3.3	43,770	20
Other	1	1.7	22,037	9
TOTAL	100	100	1,320,338	N/A

Respondents to the question = 51

* Based on 35 respondents

TABLE 4-5

MUNICIPAL SOLID WASTE DISPOSAL METHOD

DISPOSAL METHOD	JURISDICTIONS REPORTING	REPORTED WEIGHT DISPOSED* (Tonnes)	PERCENT OF TOTAL WEIGHT (%)
Landfills	65	1,590,100	98.99
Incineration	3	12,600	0.78
Material Recovery	1	1,100	0.07
Composting	1	1,200	0.07
Other	2	1,400	0.08
TOTAL	N/A	1,606,400	100.0

Respondents to the question = 66

* Based on 42 respondents

TABLE 4-6
REMAINING LIFE OF LANDFILL SITES

YEARS TO CLOSURE	LANDFILL SITES	PERCENT (%)	CUMULATIVE PERCENT (%)	DAILY VOLUME* (cu.m.)	PERCENT (%)	CUMULATIVE PERCENT (%)
1	1	0.5	0.5	76	1.1	1.1
2	3	1.5	2.0	74	1.1	2.2
3	3	1.5	3.5	16	0.2	2.4
4	4	2.0	5.5	122	1.8	4.2
5	13	6.3	11.8	431	6.3	10.5
6	2	1.0	12.8	300	4.4	14.9
7	3	1.5	14.3	22	0.3	15.2
8	4	2.0	16.3	254	3.7	18.9
9	2	1.0	17.3	621	9.1	28.0
10	88	42.9	60.2	2157	31.7	59.7
11-15	16	7.8	68.0	618	9.1	68.8
16-20	43	21.0	89.0	974	14.3	83.1
21-25	8	3.9	92.9	234	3.4	86.5
26-30	3	1.5	94.4	258	3.8	90.3
31-35	1	0.5	94.9	92	1.4	91.7
36-40	3	1.5	96.4	217	3.2	94.9
41-4	1	0.5	96.9	50	0.7	95.6
46-5	1	0.5	97.4	28	0.4	96.0
51-5	0	0.0	97.4	0	0.0	96.0
56-6	1	0.5	97.9	15	0.2	96.2
61-9	0	0.0	97.9	0	0.0	96.2
96-100	5	2.4	100.0	234	3.4	100.0

* Does not include the daily volumes from 31 sites which did not have an estimated life recorded on the permit.

Source: Waste Management Branch Permit Files.

Kent. In addition, the Cowichan Valley Regional District operates three thermal reduction plants. Incineration accounted for less than 1% of the total reported weight of wastes disposed during 1986. The Greater Vancouver Regional District is scheduled to open a new mass burn facility in early 1988. This new plant will also produce steam for sale to a nearby paper mill and produce a small amount of electricity. All of the responding jurisdictions disposed of the ash produced during 1986 by landfilling.

4.7 SOLID WASTE DISPOSAL LABOUR REQUIREMENTS

Only 50 of the 70 jurisdictions reporting responsibility for disposal specified their labour requirements. Some respondents only reported the employees who worked directly for the jurisdiction and not the employees of a contractor who may have operated the disposal site for the jurisdiction. The results are given in Table 4-8 which shows that a total of 225 man years were employed in solid waste disposal during 1986 in British Columbia.

TABLE 4-7
LANDFILL DISPOSAL TIPPING FEES

TIPPING FEE ($/Tonne)	NUMBER OF LANDFILL SITES
0	88
2	1
6	1
7	1
8	1
11	1
12	1
16	1
20	2
25	2
27	2
TOTAL	101

TABLE 4-8
SOLID WASTE DISPOSAL LABOUR REQUIREMENTS

LABOUR CATEGORY	MAN YEARS	%	REPORTING JURISDICTIONS
Management	28	12.5	24
Administration	25	11.1	21
Vehicle Operators	111	49.3	40
Labourers	61	27.1	23
TOTAL	225	100.0	N/A

Respondents to the question = 50

CHAPTER FIVE
COSTS OF MUNICIPAL SOLID WASTE MANAGEMENT

5.1 COLLECTION COSTS

A total of 88 of the 90 responding jurisdictions responsible for the collection of solid wastes provided their cost of collection which are summarized in Table 5-1. The total cost for 1986 was $28.2 million. The table also details the average cost per jurisdiction, per capita and per tonne collected. Factors which affect the costs of collection includes the number of households served, the average distance between households, the frequency of collection, the site from which the wastes are collected (curbside or backyard) and the number and size of waste containers allowed.

Respondents were asked in the collection cost section of the surveys to indicate from a list of nine cost items which cost items were included in their total costs. If a respondent stated that the collection was done solely by a contractor then it was assumed that all cost items were included. Table 5-2 lists the cost items and the number of jurisdictions which did or did not include each cost item. The results suggest that not all jurisdictions are fully accounting for their total collection costs.

5.2 RECYCLING COSTS

Only 9 of the 31 jurisdictions with recycling operations were able to specify their total cost of recycling. Some of the nine were able to specify the total cost of the recycling operation which others listed only their contribution to a privately operated recycling society. The total reported cost was $676,318. Of the nine respondents only four were able to specify the revenue received from the sale of recyclable material which totaled $266,150. Thus, the net reported cost of recycling would be no more than $410,168.

TABLE 5-1
MUNICIPAL SOLID WASTE COLLECTION COSTS 1986

JURISDICTION TYPE	NUMBER REPORTING	COLLECTION COST	AVERAGE COST	COST PER CAPITA	COST PER TONNE*
Regional District	1	$ 125,000	$125,000	N/A	$16.67
City	29	$15,946,734	$569,527	$15.27	$28.67**
District	23	$10,632,052	$443,002	$12.08	$28.91
Town	11	$ 831,392	$ 75,581	$20.17	$46.32
Village	24	$ 621,783	$ 25,908	$22.04	$18.56
TOTAL	88	$28,156,961	$319,965	$14.00	$24.08

* Based on 51 respondents

** Excludes Williams Lake commercial and industrial wastes

TABLE 5-2

COST ITEMS INCLUDED IN COLLECTION COSTS

COST ITEM	INCLUDED	NOT INCLUDED
Salaries and Benefits	81	7
Worker's Compensation	72	16
Capital Equipment	58	30
Repair and Maintenance	78	10
Fuel	77	11
Central Yard Costs	45	43
Insurance	70	18
Administration	59	29
Interest Payments	39	49

5.3 DISPOSAL COSTS

The major method of solid waste disposal was shown in Section 4.4 to be landfilling. Of the 65 jurisdictions which reported using landfill sites 62 were able to specify their total landfill cost. As shown in Table 5-3 the total costs summed to $16.4 million. Based on the 35 respondents who also indicated the total weight of solid wastes disposed the average cost per tonne was $8.98.

As with the collection costs the respondents to the landfill cost section of the survey were asked to indicate from a list of cost items which items were included in their total landfill costs. The results are presented in Table 5-4. If a respondent indicated that the site was operated by a contractor tnen it was assumed that all cost items were included in the reported total cost. The table shows that many jurisdictions are not fully accounting for all of their landfill costs. If jurisdictions are not fully accounting for their landfill cost then it will result in a bias towards landfills as the cheapest disposal method over other disposal options.

The total costs of incinerating solid wastes were available from two municipalities while the 1985 cost data was available for another jurisdiction. Two other jurisdictions which operate incinerators did not respond to the survey. The total cost of incineration was $1.1 million with the average cost per tonne processed varying between $15.00 and $37.30 which was approximately two to four times the average landfill cost per tonne.

5.4 TOTAL SOLID WASTE MANAGEMENT COSTS

The collection, recycling, and disposal costs presented above are summarized and totaled in Table 5-5. The total reported solid waste management costs for 1986 is $46 million. However, this total does not include any costs for the 43 jurisdictions which did not respond to the survey and for a few responding jurisdictions which were unable to specify some or all

TABLE 5-3
LANDFILL COSTS 1986

JURISDICTION TYPE	NUMBER REPORTING	TOTAL COST	AVERAGE COST	COST PER TONNE*
Regional District	17	$ 6,339,622	$372,919	-
City	13	$ 6,218,550	$478,350	$ 6.06
District	20	$ 3,504,362	$175,218	$ 9.21
Town	5	$ 172,197	$ 34,439	$17.43
Village	7	$ 150,885	$ 21,555	$16.62
TOTAL	62	$16,385,615	$264,284	$ 8.98

* Based on 35 respondents

TABLE 5-4

COST ITEMS INCLUDED IN LANDFILL DISPOSAL COSTS

COST ITEM	INCLUDED	NOT INCLUDED
Salaries and Benefits	55	7
Worker's Compensation	51	11
Land Purchase and Preparation	34	28
Gas Collection and Control	19	43
Leachate Control	28	34
Capital Equipment	34	28
Interest Payments	21	41
Engineering Costs	33	29
Closure and Post Closure Costs	21	41
Buildings and Security	33	29
Insurance	46	16
Administration	42	20

TABLE 5-5

TOTAL REPORTED SOLID WASTE MANAGEMENT COSTS 1986

JURISDICTION TYPE	COLLECTION COSTS	RECYCLING COSTS	LANDFILL COSTS	INCINERATION COSTS	TOTAL COSTS
Regional District	$ 125,000	$ 229,950	$ 6,339,622	$ 867,596*	$ 7,562,168
City	$15,946,734	$ 6,200	$ 6,218,550	-	$22,171,484
District	$10,632,052	$ 174,018	$ 3,504,362	$ 190,000	$14,500,432
Town	$ 831,392	-	$ 172,197	-	$ 1,003,589
Village	$ 621,783	-	$ 150,885	$ 19,060	$ 791,728
TOTAL REPORTED	$28,156,961	$ 410,168	$16,385,615	$1,076,656	$46,029,401
NON-RESPONDENT ESTIMATE**	-	-	-	-	$ 6,599,762
ESTIMATED B.C. TOTAL	-	-	-	-	$52,629,163

* 1985 cost

** see text

of their solid waste management costs. The total costs for non-reporting jurisdictions has been estimated at $6.6 million using the operating expenditures reported for 1985 (Ministry of Municipal Affairs, 1987b). Note that this estimate will include only operating costs and not any capital expenditures. Summing the total reported costs and the estimate for non-responding jurisdictions yields an estimated 1986 total solid waste management cost for B.C. of $52.6 million. Collection costs was the largest component of total reported costs accounting for 61.2% while recycling costs accounted for only 0.9% and disposal costs 37.9%.

Trends in solid waste management costs are explored in Table 5-6 which lists Statistics Canada data on the total B.C. local government expenditures on garbage and waste collection and disposal for the years 1975 to 1983. The first column lists the expenditure in the current year's dollars unadjusted for inflation while the second column lists expenditures in constant 1981 dollars. The table shows that current total and per capita expenditures increased rapidly over the period but once adjusted for inflation the growth in total expenditures has been quite modest. Similarly, while there has been sharp year to year fluctuations in constant per capita expenditures the average has remained quite stable. However, some local governments in B.C. are faced with major expansion and changes in their solid waste management systems. For example, the Greater Vancouver Regional District will soon have its Burnaby energy from waste incinerator and Coquitlam resource recovery plant in operation. Similarly, the Capital Regional District is planning a major expansion of its Hartland Avenue landfill site. These and other developments will lead to large increases in total and per capita expenditures in the very near future.

Table 5-7 compares British Columbia's 1983 local government expenditures to those of the other nine provinces. British Columbia had the third highest total expenditure. On a per capita basis British Columbia ranked second behind Ontario and just ahead of Quebec. The other provinces spent significantly less on a per capita basis.

TABLE 5-6

B.C. LOCAL GOVERNMENT EXPENDITURES ON GARBAGE AND WASTE COLLECTION AND DISPOSAL, 1975-1983

YEAR	GARBAGE AND WASTE COLLECTION AND DISPOSAL EXPENDITURES			
	Current[1] ($000)	Constant 1981$[2] ($000)	Current Per Capita ($)	Constant Per Capita ($)
1983	59,858	51,336	21.22	18.20
1982	55,505	50,231	19.89	18.00
1981	55,755	55,755	20.32	20.32
1980	49,517	56,591	18.57	21.23
1979	45,111	56,389	17.42	21.78
1978	31,935	42,981	12.56	16.91
1977	32,573	47,276	13.03	18.91
1976	30,743	47,811	12.46	19.38
1975	28,971	49,438	11.91	20.32

Source: [1]. Statistics Canada Cat. 68-204 Local Government Finance.
[2]. Calculated using the CPI for Vancouver.

TABLE 5-7

A COMPARISON OF LOCAL GOVERNMENT EXPENDITURES ON GARBAGE AND WASTE COLLECTION AND DISPOSAL, 1983

PROVINCE	EXPENDITURE ($000's)	POPULATION (000's)	PER CAPITA EXPENDITURE ($)
Newfoundland	8,058	576.0	13.99
Prince Edward Island	462	124.3	3.72
Nova Scotia	12,956	861.5	15.04
New Brunswick	5,943	707.7	8.40
Quebec	137,617	6,510.1	21.14
Ontario	228,053	8,825.2	25.84
Manitoba	15,101	1,048.1	14.41
Saskatchewan	14,334	993.6	14.43
Alberta	43,593	2,346.5	18.58
British Columbia	59,858	2,820.6	21.22
CANADA	528,306	24,884.5	21.23

Source: Statistics Canada Cat. No. 68-204 Local Government Finance.

CHAPTER SIX
RECOMMENDATIONS

6.1 INTRODUCTION

During the conduct of the survey and in the analysis of its results, several weaknesses and data gaps became apparent. The recommendations listed below have been included in order to improve any future survey work of this nature and to identify alternative ways of filling any data gaps.

6.2 RECOMMENDATIONS

The survey results did not adequately separate the quantities of wastes collected between residential, commercial and industrial sources. This breakdown of volumes is necessary in order to determine the quantities of materials potentially available from household and commercial source separation recycling programs. To correct this weakness, it is recommended that future surveys ask respondents to identify only those wastes it or its contractor collects and that the residential category be subdivided into a single family dwelling and apartment categories. The survey should also ask respondents to attach, if possible, a list of commercial waste haulers operating within their jurisdiction. The commercial waste haulers should then be contacted by a separate questionnaire to determine the quantity and source of wastes collected by them.

The waste composition question (see section 2.5), while providing a useful comparison to other waste composition studies did not provide the detail of studies which actually sample the waste stream. It is recommended that a waste composition study sampling the waste stream of several British Columbia municipalities be undertaken. Furthermore, if such studies were repeated at two or five year intervals, then trends and changes in the composition of the waste stream could be identified and acted upon.

The recycling section of the survey did not provide adequate coverage and detail of the materials collected and recycled in British Columbia. The main reason for this was that most recycling operations are run by private operators or societies. In the future, it is recommended that municipalities only be questioned about the support they provide to recycling operations, either cash payments or in-kind services, and that they list the name and address of the recycling operator. The recyclers should then be contacted separately about the types, quantities, prices and markets of the materials they collect.

The majority of jurisdictions responsible for waste disposal did not weigh the wastes they dispose of. Consequently, many could not specify the total weight disposed of during 1986 or could only provide rough estimates at best. For jurisdictions where the addition of weigh scales is impractical or unwarranted a non-weighing estimation procedure is required. For example, Ontario has developed a non-weighing estimation procedure based on truck counts coupled with average density and annualization factors (Currie, Coopers and Lybrand Ltd., 1980). It is recommended that a similar system be developed for British Columbia for use by non-weighing jurisdictions.

The landfill permit information contained in Section 4.5 was manually extracted from the Waste Management Branch's paper files. Not only is this a labour intensive procedure, it is also an error prone procedure. The ability to rapidly, easily and accurately manipulate the information contained on landfill or other permits for comparison to this survey's results or to other studies would be most useful. It is recommended that a computer data base system for storing waste discharge permit information be developed.

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APPENDIX A

THE SURVEY QUESTIONNAIRE

Province of
British Columbia

OFFICE OF THE
DEPUTY MINISTER

Ministry of
Environment

ment Buildings
oria
British Columbia
V8V 1X5

Dear Sir:

From time to time, various municipalities have questioned the Ministry policy on the regulation of soft drink and beer containers and more generally on solid waste management. Our information base on this matter is incomplete and makes it difficult to assess the adequacy of existing policies.

We seek your assistance in the development of a provincial information base by completing the attached questionnaire. The information collected will be used to make projections of future provincial solid waste generation levels and costs. The questionnaire may seem quite long and detailed, however many of its parts will not be applicable to all jurisdictions. While it may not be possible to answer all of the questions fully, any information you can give us will be most appreciated. If possible a reply by August 28, 1987 is requested.

If you have any questions regarding the purpose or content of the questionnaire, please do not hesitate to call either Dave Douglas at 387-9970, or Roger Reid at 387-9671. Thank you in advance for your cooperation.

Yours truly,

T. R. Johnson
Deputy Minister of Environment
and Parks

Attachment

MUNICIPAL SOLID WASTE MANAGEMENT QUESTIONNAIRE

1. Name of Municipality or Regional District

   _____

   _____

2. Name and Position of Contact Person

   Name: _____

   Position: _____

   Phone Number: _____

3. Is the information reported in this questionnaire based on the calendar year 1986 or on the fiscal year 1986/87? Please check one.

   ___ Calendar year 1986

   ___ Fiscal year 1986/87

PART I - SOLID WASTE COLLECTION

4. Was your Jurisdiction responsible for the collection of solid wastes during 1986?

   ___ No → Go to Question 16

   ___ Yes → Please complete the remainder of Part I

5. How many households were served by solid waste collection during 1986?

   Number of Households _____

6. How many times during 1986 were the solid wastes collected from the households? _____ collections per year

7. Where are the household solid wastes collected from? Please check one.

   ___ at the curbside

   ___ from the backyard

8. Who collected the solid wastes from the households during 1986? Please specify the percent of total solid wastes collected by each method.

Collection Method	% of Total Solid Wastes
Municipal Employees	_____
Regional District Employees	_____
Private Contract to Municipality/R.D.	_____
Private Contract with Households	_____
Delivery by Households	_____

9. What was the total weight of solid wastes collected from all sources in your jurisdiction during 1986? Please specify the total weight in tonnes. Total Solid Wastes _____ Tonnes

10. Did your jurisdiction weigh the solid wastes it collected during 1986?
___ Yes ___ No

11. Of the total solid wastes collected during the previous year, please specify the percentage originating from each of the following sources.

Source	% of Total Solid Wastes
Residential	_____
Commercial	_____
Industrial	_____
Other _____	_____

12. What are the components of the solid wastes collected by your jurisdiction? Please specify the percentage of total wastes each category accounts for.

Waste Category	% of Total Solid Wastes
Paper	_____
Glass	_____
Ferrous Metals	_____
Non-Ferrous Metals	_____
Plastics	_____
Organics	_____
Construction Material	_____
Other	_____

13. What collection equipment did your jurisdiction use during 1986? Please list capacity and number for each type of vehicle used.

Vehicle Type	Capacity (cu. yds.)	Number Used
a) Rear Loading Packer	_____	_____
b) Side Loading Packer	_____	_____
c) Front Loading Packer	_____	_____
d) Stake Truck	_____	_____
e) Pick Up Truck	_____	_____
f) Other _____	_____	_____

14. What were the labour requirements for your jurisdiction's solid waste collection system? Please specify the number of people used for each labour category during 1986.

	Number Employed
Management	_____
Administration	_____
Vehicle Operations	_____
Labourers	_____

15. What was the average haul distance of your jurisdiction's waste collection system during 1986? Please specify the average distance for your collection routes and the average distance from your collection routes to the disposal sites.

a) Average Collection Route Distance _____ km or _____ miles

b) Average Distance from Collection Route to Disposal Site _____ km or _____ miles

16. Did your jurisdiction use transfer stations during 1986?

___ No → Go to Part II

___ Yes → Please complete Question 17

17. For each transfer station, please specify its name, size (in Tonnes/Day), if volume reduction takes place, and if so how it is reduced plus the distance to the disposal site.

	Name	Size (Tonnes/Day)	Volume Reduction ✓	Volume Reduction By Shredding ✓	Baling ✓	Distance to Disposal Site (km)
a)	_____	_____	___	___	___	_____
b)	_____	_____	___	___	___	_____
c)	_____	_____	___	___	___	_____
d)	_____	_____	___	___	___	_____

PART II - RECYCLING

18. Was there a recycling operation for solid wastes in your jurisdiction during 1986?

___ No → Go to Question 30

___ Yes → Please complete the remainder of Part II

19. Did the recycling operation use recycling depots?

___ No

___ Yes → How many? _____ Number of Depots

20. Did the recycling operation involve the curbside pick-up of household sorted solid wastes?

___ No → Go to Question 25

___ Yes → How many households were served during 1986?

_____ households

21. How many times a year is there curbside pick-up from the households?

_____ collections per year

22. What is the average household participation rate per collection. Please specify the percent of total households served which participate during an average collection period.

_____ % of total households participating

23. Was the curbside pick-up done on the same day as regular garbage collection? ___ Yes ___ No

24. Were the households provided with a container for the curbside pick-up during 1986?

___ Yes ___ No

25. Please specify the percent of total recycled materials accounted for by each collection method in your jurisdiction during 1986.

	% of Total Recycled Materials
Depot	_____
Curbside Pick-up	_____

26. Please specify the type and quantity of materials collected by your jurisdiction's recycling operation during 1986. If possible please indicate your major customer for the material collected and the average price per tonne received.

Material	Collected	Quantity	Market Outlet	Price Received
Paper	___	_____	_____	_____
Glass	___	_____	_____	_____
Ferrous Metals	___	_____	_____	_____
Non-Ferrous Metals	___	_____	_____	_____
Plastics	___	_____	_____	_____
Other	___	_____	_____	_____
Specify _____				

27. Was the recycling program run by:

____ your Jurisdiction or
____ Private Operator/Society? → Name _____
Phone _____

28. How many employees were employed in the recycling operation during 1986?

	Number
Full Time Employees	_____
Part Time Employees	_____

29. Did the recycling operation do any of the following processing of materials during 1986?

	YES	MACHINE TYPE
Paper Baling	___	_____
Can Crushing	___	_____
Glass Crushing	___	_____

30. What are the major constraints to recycling in your community?

_____

_____

_____

_____

_____

PART III - SOLID WASTE DISPOSAL

31. Was your jurisdiction responsible for solid waste disposal during 1986?

____ No → Please specify who was the responsible authority and go to Part IV _____

____ Yes → Please complete the remainder of Part III

32. What was the total weight of solid wastes disposed of from all sources in your jurisdiction during 1986? Please specify the total weight in tonnes. Total Solid Wastes Disposed _____ Tonnes

33. Of the total solid wastes disposed of during the previous year, please specify the percentage originating from each of the following sources.

Source	% of Total Solid Wastes Disposed
Residential	_____
Commercial	_____
Industrial	_____
Other _____	_____

34. What was the method of waste reduction and disposal for your jurisdiction's solid wastes during 1986? Please specify the percentage of total solid wastes disposed of by each of the following disposal methods.

Method	% of Total Weight
Landfill	_____
Incineration	_____
Material or R.D.F. Recovery	_____
Composting	_____
Other	_____
Specify _____	

35. If your jurisdiction used landfills during 1986 please specify their name, the current permitted unused capacity, the estimated number of years to closure, and any tipping fees charged.

	Name	Unused Capacity (Tonnes)	Life (Years)	Tipping Fees ($)
a)	_____	_____	_____	_____
b)	_____	_____	_____	_____
c)	_____	_____	_____	_____
d)	_____	_____	_____	_____
e)	_____	_____	_____	_____

36. If your jurisdiction used incineration during 1986 please specify for each incinerator its daily capacity, average daily throughput, quantity of ash produced and the method of ash disposal.

	Capacity (Tonnes)	Average Daily Throughput (Tonnes)	Ash (Tonnes)	Ash Disposal Method
a)				
b)				
c)				
d)				
e)				

37. How many people were employed during 1986 in your jurisdiction's waste disposal system? Please specify for each category.

	Number Employed
Management	
Administration	
Equipment Operators	
Labourers	

PART IV - COSTS OF SOLID WASTE MANAGEMENT

The purpose of Part IV is to gather information on the costs of collecting, recycling, landfilling and incinerating solid wastes in British columbia during 1986. If your jurisdiction is responsible for both collection and disposal of solid wastes and you cannot separate the total costs to each component then enter your total costs for collection and disposal in the collection costs section only.

38. Collection Costs

Please specify the cost to your jurisdiction of solid waste collection during 1986. Do not include the cost of any tipping charges at landfill or incineration sites.

a) Total cost for 1986 _____
b) Unit cost per household served _____
c) Unit cost per tonne collected _____
d) Are the above costs the cost of collection only? ___ Yes ___ No
e) Does your collection costs include the costs of the following items? Check all that apply.

- salaries and benefits ___
- workman's compensation ___
- capital equipment ___
- repair and maintenance ___
- fuel ___
- central yard costs ___
- insurance ___
- administration ___
- interest payments ___

39. Recycling Costs

Please specify the costs and revenues of your jurisdiction's recycling operations during 1986.

a) Total cost for 1986 _____
b) Revenues received during 1986
   - Sale of materials _____
   - Grants or subsidies _____

c) Does your recycling costs include the costs of the following items? Check all that apply

- salaries and benefits ___
- workman's compensation ___
- household containers ___
- capital equipment ___
- repair and maintenance ___
- central yard costs ___
- administration ___
- insurance ___
- interest payments ___

40. Landfill Operation Costs

Please specify the cost of your jurisdiction's landfill operations during 1986.

a) Total cost for 1986 _____

b) Unit cost per cubic yard _____

c) Unit cost per tonne _____

d) Does your landfill operation costs include the costs of the following items? Check all that apply.

- salaries and benefits ___
- workman's compensation ___
- land purchase and preparation ___
- gas collection and control ___
- leachate control ___
- capital equipment ___
- interest payments ___
- engineering costs ___
- closure and post closure costs ___
- buildings and security ___
- insurance ___
- administration ___

41. Incinerator Costs

Please specify your jurisdiction's incineration costs during 1986.

a) Total cost for 1986 _____

b) Unit cost per tonne incinerated _____

c) Does your incineration costs include the costs of the following items? Please check all that apply.

salaries and benefits	___
workman's compensation	___
land purchase and preparation	___
incinerator and ancillery equipment	___
pollution control equipment	___
engineering cost	___
ash disposal	___
interest payments	___
administration	___
insurance	___

THANK YOU FOR YOUR COOPERATION.
PLEASE RETURN IN THE PREADDRESSED ENVELOPE

You are invited to attach any comments, reports, or financial statements pertaining to solid waste management in your jurisdiction which you may feel are appropriate.

ANNEX B
MUNICIPAL DATA

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TABLE B-1
RESPONDENTS TO THE MUNICIPAL SOLID WASTE MANAGEMENT SURVEY

ID	MUNICIPALITY/ REGIONAL DISTRICT	TYPE OF MUNICIPALITY	CONTACT PERSON
1	OSOYOOS	TOWN	L.A. MILES
2	TRAIL	CITY	DON JENSEN
3	MOUNT WADDINGTON	REG. DIST	ANNEMARIE KOCH
4	ALERT BAY	VILLAGE	JOHN ROWELL
5	TOFINO	DISTRICT	JACQUI HANSON
6	KASLO	VILLAGE	RAE SAWYER
7	METCHOSIN	DISTRICT	BRUCE WOODBURY
8	CENTRAL FRASER VALL	REG. DIST	JOHN K. SPANIER
9	THOMPSON-NICOLA	REG. DIST	FRED HART
10	SPALLUMCHEEN	DISTRICT	R.G. GRAHAM
11	SALMON ARM	DISTRICT	D.C. HUNTINGTON
12	COLWOOD	CITY	GARY SMIRFITT
13	ASHCROFT	VILLAGE	GORDON D. BERDAN
14	LANGLEY	CITY	BOB WILSON
15	CENTRAL SAANICH	DISTRICT	G.L. WHEELER
16	QUALICUM BEACH	TOWN	LEO KLEES
17	SUNSHINE COAST	REG. DIST	E. DIXON
18	NANAIMO	CITY	BRIAN DENBIGH
19	KELOWNA	CITY	T. JACK PARRY
20	COURTENAY	CITY	T. BINGHAM
21	CUMBERLAND	VILLAGE	DEREK S. YORK
22	LUMBY	VILLAGE	L.W. ANDERSON
23	MACKENZIE	DISTRICT	JOHN HILL
24	ROSSLAND	CITY	ANDRE CARREL
25	COQUITLAM	DISTRICT	D.A. KERSEY
26	SILVERTON	VILLAGE	DOROTHY MELLEN
27	NELSON	CITY	R. ADAMS
28	GOLDEN	TOWN	PHIL TAYLOR
29	LAKE COWICHAN	VILLAGE	PAT AKERLY
30	MAPLE RIDGE	DISTRICT	DON BOWINS
31	KIMBERLY	CITY	MICHAEL DODD
32	NORTH SAANICH	DISTRICT	IGOR ZAHYNOIZ
33	ELKFORD	DISTRICT	JAMES F.MONTAIN
34	KOOTENAY BOUNDARY	REG. DIST	BRUCE BOURDON
35	LIONS BAY	VILLAGE	BERNICE PULLEN
36	VANDERHOOF	DISTRICT	BRUCE D. MCAVITY
37	ESQUIMALT	DISTRICT	R.V. NORLUND
38	HOUSTON	DISTRICT	MAVIS SMITH
39	CENTRAL KOOTENAY	REG. DIST	BARRY BALDIGARA
40	PORT ALICE	VILLAGE	PETER J. MOULT
41	DUNCAN	CITY	K.E. BELLIVEAU
42	LANGLEY	DISTRICT	ROD EDWARDS
43	LYTTON	VILLAGE	JOY L. FLEMING
44	BURNS LAKE	VILLAGE	JIM PIERCE
45	NEW HAZELTON	DISTRICT	BETTY HUNT
46	HAZELTON	VILLAGE	DOUG SHELLEY
47	COLDSTREAM	DISTRICT	H.C. ELLENS
48	CRANBROOK	CITY	FRED CRASHLEY

TABLE B-1
RESPONDENTS TO THE MUNICIPAL SOLID WASTE MANAGEMENT SURVEY

ID	MUNICIPALITY/ REGIONAL DISTRICT	TYPE OF MUNICIPALITY	CONTACT PERSON
49	PORT EDWARD	VILLAGE	GRANT WEIR
50	FRASER-FORT GEORGE	REG. DIST	GATY J. DINSMORE
51	GOLD RIVER	VILLAGE	D. HILDEBRANDT
52	SKEENA QN. CHARLOTTE	REG. DIST	D.J. WILIAMSON
53	CHILLIWACK	DISTRICT	GARRY WICKHAM
54	SIDNEY	TOWN	M.G. TOWNSEND
55	SQUAMISH	DISTRICT	JOHN R. PAYNE
56	RICHMOND	DISTRICT	GUY V. BROWN
57	COMOX	TOWN	R.G. KEW
58	PORT CLEMENTS	VILLAGE	B. BARNEWALL
59	DEWDNEY-ALOUETTE	REG. DIST	P.J. GAIRNS
60	COLUMBIA-SHUSWAP	REG. DIST	DOUG DYMOND
61	POUCE COUPE	VILLAGE	J.S. WONNACOTT
62	SQUAMISH-LILLOOET	REG. DIST	IVAN R. KNOWLES
63	PRINCE RUPERT	CITY	FRANCIS S.L. WONG
64	OAK BAY	DISTRICT	JAMES MATEAR
65	MONTROSE	VILLAGE	GERRY HENKE
66	GIBSONS	TOWN	R. LORRAINE GODDARD
67	DAWSON CREEK	CITY	R.C. BREWER
68	CHASE	VILLAGE	AGNES SWEET
69	MIDWAY	VILLAGE	R.J. HATTON
70	WILLIAMS LAKE	CITY	MARGARET VOTH
71	MISSION	DISTRICT	L.E. WALTON
72	POWELL RIVER	DISTRICT	S. SIMOUETTA
73	CAPITAL	REG. DIST	TOM LIDKEA
74	MERRITT	CITY	GOERGE L. KRASNUIK
75	FORT NELSON	VILLAGE	J.C. LOCHER
76	NANIAMO	REG. DIST	W.R. COLCLOUGH
77	KAMLOOPS	CITY	DON LYONS
78	BULKLEY NECHAKO	REG. DIST	PETER STONER
79	LOGAN LAKE	DISTRICT	GORDON S. WHYTE
80	PORT MOODY	CITY	TOM HUNT
81	FORT ST. JOHN	CITY	GARY BALE
82	NORTH VANCOUVER	CITY	HUGH MCKAY
83	ZEBALLOS	VILLAGE	D.F. MCMASTER
84	LADYSMITH	TOWN	ED GILMAN
85	CRESTON	TOWN	BILL HUTCHINSON
86	PEACHLAND	DISTRICT	RONALD D. MARRIOTT
87	PEMBERTON	VILLAGE	JOANNE SANDER
88	VICTORIA	CITY	CLIVE TIMMS
89	NEW WESTMINSTER	CITY	STEVE SNOWDEN
90	CENTRAL OKANAGAN	REG. DIST	E.A. DAWES
91	SMITHERS	TOWN	ARNOLD DE ELLION
92	PORT MCNEILL	TOWN	MARGRET MCKEE
93	PENTICTON	CITY	BERNE UDALA
94	STEWART	DISTRICT	JOHN P. PARNUM
95	VERNON	CITY	A.M. GAWNE
96	NORTH OKANAGAN	REG. DIST	A.M. GAWNE

TABLE B-1
RESPONDENTS TO THE MUNICIPAL SOLID WASTE MANAGEMENT SURVEY

ID	MUNICIPALITY/ REGIONAL DISTRICT	TYPE OF MUNICIPALITY	CONTACT PERSON
97	MATSQUI	DISTRICT	DAVID COXALL
98	WHITE ROCK	CITY	MARLA HEYMAN
99	VANCOUVER	CITY	J.W. MCLEWIN
100	TERRACE	DISTRICT	DON GARE
101	WEST VANCOUVER	DISTRICT	PAUL ENOCK
102	FORT ST. JAMES	VILLAGE	AL PLAYFAIR
103	CLINTON	VILLAGE	DENNIS R. LONG
104	SLOCAN	VILLAGE	JAMES S. HILDEBRAND
105	WARFIELD	VILLAGE	SHIRLEY TOGNOTTI
106	PEACE RIVER LIARD	REG. DIST	HELLMUT PATZELT
107	REVELSTOKE	CITY	R.A. CARTER
108	PORT HARDY	DISTRICT	JIM GUSTAFSON
109	HOPE	TOWN	HEDLEY H. CROWTHER
110	CACHE CREEK	VILLAGE	ALBERT J. GORDON
111	TELKWA	VILLAGE	MURRAY CHAPLIN
112	PRINCETON	TOWN	W.G. SANDERSON
113	DELTA	DISTRICT	E.C.W. ADAMS
114	KITIMAT-STIKINE	REG. DIST	BOB MARCGLUN
115	COMOX-STRATHCONA	REG. DIST	CRAIG V. FLEMMING
116	PRINCE GEORGE	CITY	GREG ANDERSON
117	UCLUELET	VILLAGE	MURRAY HENDERSON
118	GRAND FORKS	CITY	WALTER M. SLATER
119	CHETWYND	DISTRICT	J.A. TESLYK
120	HUDSON'S HOPE	DISTRICT	ROGER A. PORTER
121	100 MILE HOUSE	VILLAGE	ROD VOTH
122	BURNABY	DISTRICT	BILL GEIGER
123	PORT COQUITLAM	CITY	TONY M.Y. CHONG
124	SAANICH	DISTRICT	S.T. BYRNIE
125	GREATER VANCOUVER	REG. DIST	BILL SMITH
126	FERNIE	CITY	DAVID COCKWELL
127	COWICHAN VALLEY	REG. DIST	ALAN JOHN
128	SURREY	DISTRICT	KIP GAUDRY
129	FRASER CHEAM	REG. DIST	R.F. MOORE

TOTAL RESPONDENTS = 129

TABLE B-2
MUNICIPAL SOLID WASTE COLLECTION DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	HOUSEHOLDS SERVED	FREQUENCY OF COLLECTION	LOCATION OF PICKUP (1)	TOTAL WEIGHT (TONNES)
1	OSOYOOS	1,403	52	3	
2	TRAIL	3,191	52	1	
4	ALERT BAY	347	52	1	
5	TOFINO	350	52	1	
6	KASLO	315		1	520
13	ASHCROFT	450	52	3	
16	QUALICUM BEACH	1,600	52	1	600
17	SUNSHINE COAST	5,000	52	1	7,500
18	NANAIMO	10,636	50	1	5,864
19	KELOWNA	17,300	52	1	45,000
20	COURTENAY	4,149	52	3	10,200
21	CUMBERLAND	742	52	1	100
22	LUMBY	404	52	1	
23	MACKENZIE	1,150	52	1	
24	ROSSLAND	1,183	52	1	
25	COQUITLAM	18,056	52	1	17,350
26	SILVERTON	121	52	3	
27	NELSON	3,300	52	2	4,160
28	GOLDEN	1,000	52	1	
31	KIMBERLY	2,800	52	1	
33	ELKFORD	1,200	52	1	
35	LIONS BAY	390	52	1	
36	VANDERHOOF	520	52	1	1,275
37	ESQUIMALT	3,000	52	2	4,000
38	HOUSTON	830		3	
40	PORT ALICE		99	1	
41	DUNCAN	1,100	52	2	2,875
44	BURNS LAKE	500	52	1	
46	HAZELTON	150	52	1	845
48	CRANBROOK	4,300	50	3	26,000
49	PORT EDWARD	200	52	1	
51	GOLD RIVER	730	65	3	1,531
55	SQUAMISH	2,891	52	1	7,647
56	RICHMOND	28,050	50	3	
57	COMOX	2,500	52	1	
61	POUCE COUPE	230	52	2	
63	PRINCE RUPERT	3,506	52	2	15,800
64	OAK BAY	6,000	34	2	3,915
65	MONTROSE	400	52	2	
66	GIBSONS	900	52	1	
67	DAWSON CREEK	3,300	52	3	25,000
68	CHASE	680	52	1	
69	MIDWAY	225	52	2	
70	WILLIAMS LAKE		52	3	173,940
71	MISSION	5,030	52	1	12,400
72	POWELL RIVER	5,000	52	1	12,500
74	MERRITT	2,362	50	3	40,000

TABLE B-2
MUNICIPAL SOLID WASTE COLLECTION DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	HOUSEHOLDS SERVED	FREQUENCY OF COLLECTION	LOCATION OF PICKUP (1)	TOTAL WEIGHT (TONNES)
77	KAMLOOPS	18,000	50	3	19,443
78	BULKLEY NECHAKO			0	
79	LOGAN LAKE	500	52	1	630
80	PORT MOODY	4,545	50	1	4,556
81	FORT ST. JOHN	5,293	52	3	30,000
82	NORTH VANCOUVER	5,410	52	1	8,926
83	ZEBALLOS	89	52	1	
84	LADYSMITH	1,540	52	1	
85	CRESTON	1,880	52	1	
86	PEACHLAND	1,300	52	1	
88	VICTORIA	37,970	50	2	43,500
89	NEW WESTMINSTER	6,991	50	1	9,595
91	SMITHERS	1,350	52	1	4,460
92	PORT MCNEILL	880	52	1	1,300
93	PENTICTON	8,500	52	3	17,500
94	STEWART	421	52	1	700
95	VERNON	6,000	52	1	
97	MATSQUI	11,829	52	1	29,572
98	WHITE ROCK	7,100	52	1	6,900
99	VANCOUVER	85,000	52	2	121,000
100	TERRACE	2,400	50	1	
101	WEST VANCOUVER	10,336	52	1	9,975
102	FORT ST. JAMES	500	52	1	2,500
103	CLINTON	340	52	1	
104	SLOCAN	176	52	1	
105	WARFIELD	650	52	1	
107	REVELSTOKE	2,637	52	3	
108	PORT HARDY	1,500	52	1	
109	HOPE	1,000	52	3	2,000
110	CACHE CREEK	500	52	1	6,000
111	TELKWA	273	52	1	195
113	DELTA	25,000	52	1	25,000
116	PRINCE GEORGE	18,000	52	1	55,000
117	UCLUELET	600	52	1	1,000
118	GRAND FORKS	1,443	52	3	1,850
119	CHETWYND	1,080	52	1	
120	HUDSON'S HOPE	339	72	1	
121	100 MILE HOUSE	456	52	1	1,284
122	BURNABY	35,000	50	1	43,180
123	PORT COQUITLAM	8,200	52	1	9,300
124	SAANICH	25,900	29	2	15,000
126	FERNIE	6,000	52	3	
127	COWICHAN VALLEY	1,085	52	1	
128	SURREY	45,000	52	1	118,000
129	FRASER CHEAM		52	1	

TABLE B-2
MUNICIPAL SOLID WASTE COLLECTION DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	HOUSEHOLDS SERVED	FREQUENCY OF COLLECTION	LOCATION OF PICKUP (1)	TOTAL WEIGHT (TONNES)
	RESPONDENTS TO THE QUESTION =	92			
	TOTAL HOUSEHOLDS SERVED =	540,504			
	TOTAL WEIGHT COLLECTED =	1,007,388			

(1) 1 = AT THE CURBSIDE
2 = FROM THE BACK YARD
3 = COMBINATION OF 1 AND 2

TABLE B-3
MUNICIPAL SOLID WASTE COLLECTION METHOD
(% OF TOTAL SOLID WASTES COLLECTED)

ID	MUNICIPAL SERVICE	PRIVATE CONTRACT WITH MUNICIPALITY	PRIVATE CONTRACT WITH HOUSEHOLD	DELIVERY BY THE HOUSEHOLDS
1		100%		
2		100%		
4	98%			2%
5		100%		
6	80%			20%
13	99%			
16	100%			
17		100%		
18	75%	25%		
19		95%		5%
20	3%	90%		7%
21	100%			
22		100%		
23	100%			
24		100%		
25		100%		
27	100%			
28		100%		
31	95%			
33	100%			
35		100%		
36	90%		10%	
37	95%		5%	
38			100%	
40	10%	80%		10%
41	100%			
44	100%			
46	100%			
48	100%			
49	100%			
51	100%			
55		100%		
56		75%	25%	
57		100%		
61	98%	2%		
63	100%			
64	100%			
65	100%			
66		70%	25%	5%
67		100%		
68	100%			
69			25%	75%
70		100%		
71		33%	67%	
72	70%		25%	5%
74	90%			10%
77	100%			
78	90%			10%
79	100%			
80	100%			
81		100%		
82		100%		

TABLE B-3
MUNICIPAL SOLID WASTE COLLECTION METHOD
(% OF TOTAL SOLID WASTES COLLECTED)

ID	MUNICIPAL SERVICE	PRIVATE CONTRACT WITH MUNICIPALITY	PRIVATE CONTRACT WITH HOUSEHOLD	DELIVERY BY THE HOUSEHOLDS
83	100%			
84		100%		
85	100%			
86	90%			10%
88	45%		55%	
89	100%			
91	100%			
92		50%		
93		100%		
94	94%			6%
95	100%			
97	81%			19%
98	61%	5%	7%	27%
99	100%			
100	100%			
101		100%		
102	95%			5%
103	95%			5%
104	100%			
105		100%		
107		100%		
108		100%		
109	100%			
110	100%			
111	100%			
113		100%		
116	75%	25%		
117		100%		
118		100%		
119	90%			10%
120	100%			
121		100%		
122	100%			
123	100%			
124	100%			
126	100%			
128		55%	45%	1%
129		100%		

RESPONDENTS TO THE QUESTION = 90

TABLE B-4
SOURCE OF MUNICIPAL SOLID WASTES COLLECTED
(% OF TOTAL SOLID WASTES COLLECTED)

ID	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER
2	80%	10%	5%	5%
4	70%	30%		
5	70%	30%		
6	80%	16%		4%
13	75%	25%		
16	85%	15%		
17	90%	10%		
18	100%			
20	50%	50%		
21	80%	20%		
22	36%	64%		
23	70%	20%	10%	
25	99%	1%		
26	95%	5%		
27	57%	37%	6%	
33	90%	10%		
35	99%	1%		
36	64%	36%		
37	90%	5%	5%	
40	80%	10%	10%	
41	28%	72%		
44	65%	25%	10%	
46	30%	70%		
49	80%	5%	15%	
51	65%	25%	10%	
55	85%	14%		1%
61	86%	14%		
63	39%	30%	24%	7%
64	95%	5%		
65	99%	1%		
68	70%	20%	10%	
69	90%	9%		1%
70	7%	93%		
71	55%	45%		
72	60%	20%	10%	10%
74	87%	11%	2%	
77	55%	45%		
78	80%	15%	5%	
79	75%	20%	5%	
80	95%	5%		
83	98%	1%	1%	
84	100%			
85	50%	50%		
86	94%	6%		
89	68%	32%		
91	37%	63%		
92	40%	40%	10%	10%
93	75%	25%		

TABLE B-4
SOURCE OF MUNICIPAL SOLID WASTES COLLECTED
(% OF TOTAL SOLID WASTES COLLECTED)

ID	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER
94	90%	10%		
95	40%	60%		
97	31%	63%		6%
98	71%	29%		
99	76%	24%		
100	60%	40%		
101	99%	1%		
102	90%	10%		
103	60%	40%		
104	95%	5%		
105	94%	5%	1%	
107	48%	50%	2%	
108	50%	30%	20%	
109	80%	20%		
110	48%	50%	2%	
111	85%	10%	5%	
113	100%			
116	30%	35%	35%	
117	60%	30%	10%	
118	60%	40%		
120	95%	5%		
121	50%	50%		
122	80%	20%		
123	100%			
124	98%	2%		
126	70%	30%		
128	80%	20%		

RESPONDENTS TO THE QUESTION = 75

TABLE B-5
COMPONENTS OF THE MUNICIPAL SOLID WASTES
(% OF TOTAL SOLID WASTES COLLECTED)

ID	PAPER	GLASS	FERROUS METALS	NON-FERROUS METALS	PLASTIC	ORGANIC MATERIAL	CONSTRUCTION MATERIAL	OTHER MATERIAL
2	30%	25%	5%	5%	15%	10%	5%	5%
6	5%	10%	5%	5%	10%	60%	5%	
13	85%	1%	2%	1%	1%	10%		
20	45%	5%	7%	1%	6%	25%	5%	6%
23	50%	1%			3%	40%		6%
27	40%	12%	10%	1%	6%	24%	2%	5%
33	20%	20%			40%			20%
36	50%	10%	1%	2%	5%	20%	15%	
37	10%	3%	2%	5%	5%	65%	5%	5%
40	20%	15%	15%	5%	10%	30%	3%	3%
44	50%	5%	1%	1%	25%	5%	3%	10%
63	35%	1%	4%		10%	7%	14%	
65	20%	20%	5%	5%	20%	20%	5%	5%
68	50%	1%		40%	2%	6%	1%	
72	50%	10%	5%	5%	5%	10%	5%	10%
78	80%	5%	5%		5%		5%	
79	40%	10%	2%	2%	10%	34%	2%	
81	75%	1%	10%	1%	5%	2%	5%	1%
86	30%	15%	10%	23%	10%	7%	5%	
88	43%	9%	10%		4%	24%	3%	7%
89	1%	5%	1%	1%	5%	60%	10%	18%
92	40%	10%	10%	5%	5%	20%	10%	
94	25%	18%	12%	10%	20%	13%	2%	
100	40%	10%	10%		20%	10%	10%	
102	30%	5%	5%		10%	40%		10%
104	20%	10%	5%	5%	15%	20%	15%	10%
111	10%	10%	10%	10%	20%	30%	10%	
119	25%	2%	10%	10%	5%	38%	5%	5%
120	50%	5%	7%	5%	15%		15%	3%
122	25%	15%	7%	2%	15%	30%	6%	

RESPONDENTS TO THE QUESTION = 30

TABLE B-6
MUNICIPAL SOLID WASTE COLLECTION EQUIPMENT

ID	CAPACITY OF REAR LOADERS	NUMBER OF REAR LOADERS	CAPACITY OF SIDE LOADERS	NUMBER OF SIDE LOADERS
1				1
4	15	1		
5				
6			8	1
13	20	1		
16			10	1
17	16	3		
18			29	3
20			16	1
21			10	1
22			3	1
23	20	1		
24		1		
26				
27	25	1	29	1
28	10	1		
31				2
33	20	1		
35				1
36			12	1
37	25	3		
40	10	1		
41	16	3		
44	13	1		
46			13	1
48			12	2
49			12	1
51	5	1		
56	25	1	33	4
61				
63	40	2	40	2
64	25	3		
65			10	1
66	16	2		
67			25	1
68			10	1
70			25	2
71			30	1
72	10	2		
74	18	2		
77			29	7
79			5	1
80	22	3		
81			9	3
82	22	2		
83				
84			12	1
85			29	1
86			6	1
88	25	5	12	3
89	23	4		
91	16	1		

TABLE B-6
MUNICIPAL SOLID WASTE COLLECTION EQUIPMENT

ID	CAPACITY OF REAR LOADERS	NUMBER OF REAR LOADERS	CAPACITY OF SIDE LOADERS	NUMBER OF SIDE LOADERS
92	20	1		
93			12	2
94				1
95				
97			27	5
98			4	2
99	25	44		
100	22	2		
101	20	3		
102	16	1		
103			12	1
104				
107		2		
108			25	2
109	16			
110			12	1
111			4	1
113	33	5		
116			12	8
117	12	2		
118	15	1		
119			5	1
120				
121				
122	25	12		
123	20	4		
124	25	5	29	2
126	3	1		

RESPONDENTS TO THE QUESTION = 80

TOTAL NUMBER OF REAR LOADERS = 129

TOTAL NUMBER OF SIDE LOADERS = 73

TABLE B-7
MUNICIPAL COLLECTION EQUIPMENT CONTINUED

ID	CAPACITY OF FRONT LOADERS	NUMBER OF FRONT LOADERS	CAPACITY OF STAKE TRUCKS	NUMBER OF STAKE TRUCKS
1		1		
4				
5		1		
6				
13				
16				
17				
18				
20	35	2	40	1
21				
22	8	1		
23				
24				
26				
27				
28				
31				
33				
35				
36				
37				
40				
41				
44				
46				
48				
49				
51				
56	33	1		
61				
63				
64				
65				
66				
67	29	1		
68				
70	36	1		
71				
72				
74				
77		3		
79				
80				
81	30	1		
82				
83			5	1
84				
85				
86				
88				
89				
91				

TABLE B-7
MUNICIPAL COLLECTION EQUIPMENT CONTINUED

ID	CAPACITY OF FRONT LOADERS	NUMBER OF FRONT LOADERS	CAPACITY OF STAKE TRUCKS	NUMBER OF STAKE TRUCKS
92				
93	29	4	31	3
94				
95	34	2		
97				
98	33	1		
99	30	10		
100				
101				
102				
103				
104				
107				
108				
109				
110				
111				
113				
116	30	2		
117				
118				
119				
120	5	1		
121	36	1		
122	30	2		
123				
124	10	3		
126				

RESPONDENTS TO THE QUESTION = 80

TOTAL NUMBER OF FRONT LOADERS = 38

TOTAL NUMBER OF STAKE TRUCKS = 5

TABLE B-8
MUNICIPAL COLLECTION EQUIPMENT CONTINUED 2

ID	CAPACITY OF PICKUP TRUCKS	NUMBER OF PICKUP TRUCKS	CAPACITY OF OTHER VEHICLES	NUMBER OF OTHER VEHICLES
1				
4				
5				
6				
13				
16				
17				
18			12	1
20			28	1
21				
22				
23				
24				
26	14	1		
27				
28				
31				
33				
35				
36				
37				
40	2	1	8	1
41				
44				
46				
48				
49				
51				
56				
61		1		
63				
64				
65				
66				
67				
68				
70				1
71				
72				
74				
77			4	1
79				
80				
81			30	7
82				
83				
84				
85				
86				
88				
89				
91				

TABLE B-8
MUNICIPAL COLLECTION EQUIPMENT CONTINUED 2

ID	CAPACITY OF PICKUP TRUCKS	NUMBER OF PICKUP TRUCKS	CAPACITY OF OTHER VEHICLES	NUMBER OF OTHER VEHICLES
92				
93		1	40	1
94				
95			10	4
97				
98			40	1
99				
100				
101				
102				
103				
104			5	1
107				
108			40	1
109				
110				
111				
113				
116				
117				
118				
119				
120				
121			12	1
122	1	2		
123				
124	3	5		
126				

RESPONDENTS TO THE QUESTION = 80

TOTAL NUMBER OF PICKUP TRUCKS = 11

TOTAL NUMBER OF OTHER VEHICLES = 21

TABLE B-9
SOLID WASTE COLLECTION LABOUR REQUIREMENTS

ID	MANAGEMENT	ADMINISTRATION	VEH OPERATOR	LABOUERER	TOTAL
4	1	1	1	2	5
6				1	1
13				2	2
16				1	1
17	2	1	10		13
18	1		4		5
20	2	2	3	1	8
21			1	1	1
23			1	1	2
26		1	1		2
27			4		4
28	1		1	1	3
31	1	1	2	2	6
33	1	1	1	31	34
36			1		1
37			2	4	6
40	1	1	2	2	6
41	1	1	2	3	6
44			1	1	2
46			1	1	2
48			3		3
49	1		1	1	3
51	1	1	1	1	4
56	1	1	5	10	17
61		1	1	1	3
63		1	2	2	5
64			3	4	7
65				1	1
67	1	1	3		5
68	1	1	1	1	3
70	2		3		5
71		1	1		2
72	1	1	2	4	8
74			3		3
77	2		11		13
79	1		1		2
80			4		4
81	1		3		4
82			4		4
83				1	1
84			1		1
85			1		1
86			1	1	2
88	2		8	18	28
89	1	1	1	8	11
91			1	1	2
93	1	3	8		12
94			1		1
95	1		5	1	7
97	1		5		6
98		1	3	1	5
99	6	3	37	34	80
100			2	3	5

TABLE B-9
SOLID WASTE COLLECTION LABOUR REQUIREMENTS

ID	MANAGEMENT	ADMINISTRATION	VEH OPERATOR	LABOUERER	TOTAL
101	1		9		10
102			1		1
103		1		1	2
104			1		1
107			2	2	5
108			2		2
109			1	1	2
110			1		1
111					1
116	2		9		11
118	1		1	4	6
119			1	2	3
120	1	1	1		2
121			1		1
122	3	2	1	28	34
123		1	4	4	9
124	1		31	1	33
126		1	1	1	3
127	1				1
128	1				1
TOTAL	44.3	31.1	230.4	190.4	496.2

RESPONDENTS TO THE QUESTION = 73

TABLE B-10
MUNICIPAL COLLECTION ROUTE AND HAUL DISTANCES (KM)

ID	AVERAGE ROUTE DISTANCE	AVERAGE HAUL DISTANCE	USES A TRANSFER STATION
1		4	
2			
4	6	3	
5			
6	24	3	
13	4	6	
16	3	3	
17			
18	96	8	
19			
20	23	10	
21	39	6	
22		8	
23	11	5	
24	45	10	
25	60	25	1
26	8	18	
27	24	3	1
28	3	5	
31		3	
33	5	11	
35	11	40	
36	28	2	
37	10	15	
38			
40	16	3	
41	2	5	
44	8	8	
46	2	18	
48	16	5	
49	3	15	
51	9	2	
55	94	8	
56	18	11	
57	6	13	
61	8	6	
63	8	5	
64	24	21	
65	11	10	
66		29	
67	45	5	
68	27	39	
69		5	
70	11	3	
71			
72	64	5	
74	3	3	
77		14	
78			
79	6	12	
80	20	10	1
81	20	7	
82	13	8	1

TABLE B-10
MUNICIPAL COLLECTION ROUTE AND HAUL DISTANCES (KM)

ID	AVERAGE ROUTE DISTANCE	AVERAGE HAUL DISTANCE	USES A TRANSFER STATION
83	3	5	
84	20	2	
85	10	10	
86	40	8	
88	29	23	1
89	43	6	1
91		11	
92	5	5	
93		5	
94	45	2	
95	4	7	
97	40	8	
98	43	35	1
99	8	23	
100	99	15	
101	95	15	
102	2	3	
103	8	2	
104	7		
105			
107	3	5	
108	48	4	
109	6	6	
110	10	7	
111	16	5	
113			
116	4	8	1
117	5	13	
118	95	3	
119	18	4	
120	32	8	
121	5	8	
122	15	8	1
123	20	12	
124	40	13	
126		3	
127			
128	35	22	
129			

TABLE B-11
COMMUNITES WITH RECYCLING PROGRAMS

ID	MUNICIPALITY/ REGIONAL DISTRICT	DEPOT SYSTEM	NUMBER OF DEPOTS	CURBSIDE PICKUP SYSTEM	HOUSEHOLDS SERVED
2	TRAIL	1			
10	SPALLUMCHEEN	1	1		
14	LANGLEY	1	6		
17	SUNSHINE COAST			1	5,000
19	KELOWNA	1	3	1	1,300
20	COURTENAY	1	7		
30	MAPLE RIDGE	1	14	1	10,000
32	NORTH SAANICH	1	1		
37	ESQUIMALT	1	1		
42	LANGLEY	1	3		
53	CHILLIWACK	1	1		
54	SIDNEY	1	1		
56	RICHMOND			1	28,050
72	POWELL RIVER	1			
73	CAPITAL	1	9		
80	PORT MOODY			1	4,300
82	NORTH VANCOUVER			1	5,161
88	VICTORIA			1	2,000
89	NEW WESTMINSTER			1	
96	NORTH OKANAGAN	1	7		
97	MATSQUI	1	110		
98	WHITE ROCK	1	2	1	7,100
99	VANCOUVER	1	2		
101	WEST VANCOUVER	1	2	1	10,366
112	PRINCETON	1	1		
113	DELTA	1	4	1	23,000
118	GRAND FORKS	1	1		
122	BURNABY			1	35,000
123	PORT COQUITLAM			1	2,400
124	SAANICH			1	20,000
125	GREATER VANCOUV	1	1		

RESPONDENTS TO THE QUESTION = 31

TOTAL HOUSEHOLDS SERVED BY CURBSIDE PICKUP = 153,677

TOTAL DEPOTS = 177

TABLE B-12
CURBSIDE RECYCLING PICK-UP DATA

ID	FREQUENCY OF PICKUP	PARTICIPATION RATE	SAME DAY PICKUP	CONTAINERS PROVIDED
17	26	15%	1	1
19	52	75%		1
30	51	10%		
56	24	20%	1	1
80	25	30%	1	1
82	52		1	1
88	17			1
89				1
98	52	65%	1	1
101	52	75%	1	1
113	26	50%		1
122	25	25%	1	1
123	26	29%	1	1
124	17	10%		

MUNICIPALITIES PROVIDING CONTAINERS = 12

MUNICIPALITIES WITH SAME DAY PICKUP OF RECYCLABLES = 8

TABLE B-13
DISTRIBUTION OF RECYCLED MATERIALS BY COLLECTION METHOD
(% OF TOTAL RECYCLABLE MATERIALS COLLECTED)

ID	DEPOT PERCENT	DEPOT COUNT	CURBSIDE PERCENT
2	100%		
10	100%		
14	100%		
17			100%
19	40%		60%
20	100%		
30	80%		20%
32	100%		
37	100%		
42	100%		
54	100%		
56			100%
72	100%		
73	100%		
80			100%
82			100%
88			100%
89			100%
96	100%		
97	100%		
99	100%		
101	40%		60%
112	100%		
113	25%		75%
118	100%		
122			100%
123			100%
124			100%
125	100%		

RESPONDENTS TO THE QUESTION = 29

TABLE B-14
MUNICIPALITIES RECYCLING PAPEI

ID	QUANTITY (TONNES)	MARKET FOR PAPER	PRICE PER TONNE
17			
19	850	INTL PAPER,PAC MET	$65.00
20	216	VICTORIA	$55.00
30	480	PACIFIC ME	$58.00
32		CRD	
37	30	CRD	
53	695	INTL PAPER	$56.00
54	30		
56	950		$5.00
73	775		$50.00
80	182		
82			
96	1,744	INTL PAPER	
97	635	SURREY	$75.00
99	267		
101	1,370		
112			
113		SUPERIOR	$54.00
118	20	USA	$45.00
122			
123	400		
124	1,112		
125	1,561	VARAIETY CLUB	

MUNICIPALITIES RECYCLING PAPER = 23

TOTAL PAPER RECYCLED = 11,317

TABLE B-15
MUNICIPALITIES RECYCLING GLASS

ID	QUANTITY (TONNES)	MARKET FOR GLASS	PRICE PER TONNE
17			
19	250	CONSUMERS GLASS	$54.00
30	71	PACIFIC ME	$35.00
32		CRD	
37	3	CRD	
53	85		
73	364		$30.00
96	150	CONSUMERS GLASS	$54.00
97	28		
99	225		
101	400		
112			
113		PACIFIC MET	$15.00
118	29	USA	$40.00
124	477		
125			

MUNICIPALITIES RECYCLING GLASS = 16

TOTAL GLASS RECYCLED = 2,082

TABLE B-16
MUNICIPALITIES RECYCLING FERROUS METALS

ID	QUANTITY (TONNES)	MARKET FOR FERROUS METALS	TOTAL FERROUS C	PRICE PER TONNE
17				
19	100			$30.00
30	332	ABC RECYCL		$7.00
37	2	CRD		
73	49			$33.00
99	443			
101	48			
113		RICHMOND STEEL		$15.00
124	62			
125	1,032	RICHMOND STEEL		$20.00

MUNICIPALITIES RECYCLING FERROUS METALS = 10

TOTAL FERROUS METALS RECYCLED = 2,068

TABLE B-17
MUNICIPALITIES RECYCLING NON-FERROUS METALS

ID	QUANTITY (TONNES)	MARKET FOR NON-FERROUS METALS	PRICE PER TONNE
30	10	ABC RECYCL	$211.00
97	5	SURREY	$380.00
99	2		
112			
113		PACIFIC METALS	
118	30		
125	6	PACIFIC METALS	$198.00

MUNICIPALITIES RECYCLING NON-FERROUS METALS = 7

TOTAL NON-FERROUS METALS RECYCLED = 53

TABLE B-18
MUNICIPALITIES RECYCLING OTHER MATERIAL

ID	QUANTITY (TONNES)	MARKET FOR OTHER MATERIALS	PRICE PER TONNE
30	200		$7.00
73	60		$20.00
97	454	SURREY	$78.00
118	144	USA	$45.00

MUNICIPALITIES RECYCLING OTHER MATERIALS = 4

TOTAL OTHER MATERIALS RECYCLED = 858

TABLE B-19
RECYCLING PROGRAM OPERATOR AND LABOUR REQUIREMENTS

ID	PROGRAM OPERATOR (1)	FULL TIME EMPLOYEES	PART TIME EMPLOYEES	TOTAL
19	2	4	4	8
20	2	1	1	2
30	2	5	5	10
37	2		4	4
56	2	3		3
72	2	4	3	7
73	1	2	1	3
96	2	3	2	5
97	2	4	20	24
98	2	3		3
99	2	1		1
101	1	2		2
113	2	8		8
118	2	1	4	5
125	3	1	4	5

TOTAL FULL TIME = 42

TOTAL PART TIME = 48

TOTAL = 90

(1) 1 = MUNICIPALITY OR REGIONAL DISTRICT
2 = PRIVATE OPERATOR OR SOCIETY

TABLE B-20
PROCESSING OF RECYCLED MATERIAL

ID	PAPER BALER	BALER TYPE	CRUSH CANS	CRUSHER TYPE	CRUSH GLASS	CRUSHER TYPE
2						
10						
14						
17					1	
19	1	HORIZONTA	1	BALER	1	DRUM CRUS
20	1	BAILER				
30	1	BALCON			1	BY HAND
32					1	BY HAND
37			1	BY HAND	1	BY HAND
42						
53	1					
54						
56						
72	1		1	BY HAND	1	BY HAND
73	1	CARDBOARD	1	CAN BAILE		
80						
82						
88						
89						
96	1	KILKOM				
97	1	2-1400 LB	1	2-1400 LB		
98						
99					1	
101	1	BALER			1	BENEFICAT
112	1				1	
113	1	OWATONNA				
118	1		1		1	
122	1					
123						
124						
125	1	HR B8				

MUNICIPALITIES BALING PAPER = 14

MUNICIPALITIES CRUSHING CANS = 6

MUNICIPALITIES CRUSHING GLASS = 10

TABLE B-21
DISPOSAL OF MUNICIPAL SOLID WASTES

ID	MUNICIPALITY/ REGIONAL DISTRICT	DISPOSAL WEIGHT (TONNES)	NUMBER OF LANDFILLS	NUMBER OF INCINERATORS
1	OSOYOOS		1	
2	TRAIL		1	
3	MOUNT WADDINGTO	795	5	
4	ALERT BAY		1	
9	THOMPSON-NICOLA	16,000		
10	SPALLUMCHEEN		1	
11	SALMON ARM	7,564	1	
13	ASHCROFT			
16	QUALICUM BEACH	2,000	1	
17	SUNSHINE COAST	10,000	1	
19	KELOWNA	60,000	1	
20	COURTENAY	10,200	1	
22	LUMBY		1	
23	MACKENZIE		1	
30	MAPLE RIDGE	22,172	1	
31	KIMBERLY		1	
33	ELKFORD		1	
34	KOOTENAY BOUNDA	7,500	7	
39	CENTRAL KOOTENA	30,000	6	
40	PORT Alice		1	1
42	LANGLEY	43,000	1	
48	CRANBROOK	25,000	1	
50	FRASER-FORT GEO		9	
51	GOLD RIVER	1,500	1	
53	CHILLIWACK	29,000	1	
55	SQUAMISH	7,647	1	
56	RICHMOND	26,000	1	
57	COMOX			
58	PORT CLEMENTS	520	2	
59	DEWDNEY-ALOUETT	419		
60	COLUMBIA-SHUSWA	14,900	8	
61	POUCE COUPE			
62	SQUAMISH-LILLOO		3	
63	PRINCE RUPERT	15,800	1	
67	DAWSON CREEK	24,000	1	
70	WILLIAMS LAKE		1	
71	MISSION	13,100	1	
72	POWELL RIVER	12,500		1
73	CAPITAL	165,000	1	
74	MERRITT	44,000	1	
75	FORT NELSON	4,500	1	
76	NANIAMO	24,635	1	
77	KAMLOOPS	36,069	2	
78	BULKLEY NECHAKO		9	
81	FORT ST. JOHN	15,000	1	
86	PEACHLAND		1	

TABLE B-21
DISPOSAL OF MUNICIPAL SOLID WASTES

ID	MUNICIPALITY/ REGIONAL DISTRICT	DISPOSAL WEIGHT (TONNES)	NUMBER OF LANDFILLS	NUMBER OF INCINERATORS
90	CENTRAL OKANAGA		2	
94	STEWART	700	1	
96	NORTH OKANAGAN		1	
97	MATSQUI	30,693	1	
98	WHITE ROCK	6,900	1	
99	VANCOUVER	670,000	1	
100	TERRACE	14,000	1	
101	WEST VANCOUVER	9,975	1	
104	SLOCAN		1	
106	PEACE RIVER LIA			
108	PORT HARDY	9,125	1	
109	HOPE	4,000	1	
111	TELKWA	195	1	
114	KITIMAT-STIKINE		7	
115	COMOX-STRATHCON	17,700	1	
116	PRINCE GEORGE	55,000	1	
119	CHETWYND		1	
120	HUDSON'S HOPE		1	
121	100 MILE HOUSE	1,284	1	
125	GREATER VANCOUV	52,655		
126	FERNIE		1	
127	COWICHAN VALLEY		1	3
128	SURREY	118,000	1	
129	FRASER CHEAM		3	

RESPONDENTS TO THE QUESTION = 70

TOTAL WEIGHT DISPOSED OF = 1,659,048

TOTAL NUMBER OF LANDFILLS = 113

TOTAL NUMBER OF INCINERATORS = 5

TABLE B-23
METHOD OF DISPOSAL
(% OF TOTAL DISPOSAL MATERIAL)

METHOD OF DISPOSAL
(% OF TOTAL DISPOSAL MATERIAL)

ID	LANDFILL	INCINERATION	RDF	OTHER METHOD
104	100%			
106	100%			
108	100%			
109	100%			
111	100%			
114	100%			
115	93%			
116	100%			
119	100%			
120	100%			
121	100%			
126	100%			
127	5%	95%		
128	100%			

RESPONDENTS TO THE QUESTION = 66

TABLE B-24
SOLID WASTE DISPOSAL LABOUR REQUIREMENTS

SOLID WASTE DISPOSAL LABOUR REQUIREMENTS

ID	MANAGEMENT	ADMINISTRATION	EQUIPMENT OPERATOR	LABOUERER	TOTAL
3	2		3	2	7
4	1	1	1	2	5
9	1	1	2		4
10	1				1
11					1
13				2	2
16			1		1
17	1	1	1		3
19	1	1	2		4
22				1	1
23			1		1
31	1		1		
33	1	1	1		3
34	1				1
39		1	3	7	11
40	1	1	1	1	4
42	1	1	1	1	4
48				2	2
50	1	1	3		5
51	1	1	1	1	4
53	1		4		5
56	1	1	5	10	17
59				1	1
60		1		4	5
62					
67			1	1	2
70	1	1	1		3
71		1	1		2
72	1		1		2
73	1	2	3	1	7
77	1		13		14
78	1		12	2	15
81			1		1
86			3		3
90		1	1	1	3
94			1		1
97	1		2	2	5
98		1	3	1	5
99	4	4	8	13	29
100			1		1
104			1		1
106				1	1
108			2		2
109		1	1	1	3
111					
114			7	3	10
119				1	1
120	1	1	1		3
121			1		1
126			1		1
127	1	1	13		15

TABLE B-24
SOLID WASTE DISPOSAL LABOUR REQUIREMENTS
SOLID WASTE DISPOSAL LABOUR REQUIREMENTS

ID	MANAGEMENT	ADMINISTRATION	EQUIPMENT OPERATOR	LABOUERER	TOTAL
TOTAL	28	25	111	61	225

RESPONDENTS TO THE QUESTION = 51

TABLE B-25
MUNICIPAL LANDFILL SITE DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	CAPACITY (TONNES)	REMAINING SERVICE LIFE	TIPPING FEE
2	MCKELVIE CREEK		7	
4	ALERT BAY GARBA			$2.00
10	POWERHOUSE RD,		5	
11	SALMON ARM LAND	150,000	20	
16	QUALICUM BEACH		1	
17	SECHELT		50	
19	GLENMORE RD.			
22	VILLAGE OF LUMB		5	
23	MUNICIPAL		3	
30	COTTONWOOD	44,000	2	$27.00
31	KIMBERLEY LANDF			
33	ELKFORD MUNICIP		10	
34	TRAIL		7	
34	GRAND FORKS		20	
34	CHRISTINA LAKE		10	
34	GREENWOOD		20	
34	ROCK CREEK		20	
34	BEAVERDELL		20	
34	BIG WHITE		20	
39	OOTISCHENIA	120,000	15	
39	CANEX RD.	150,000	15	
39	CRESTON	100,000	15	
39	KASLO & MARBLEH	4,000	3	
39	WILSON CREEK	10,000	7	
39	NAKUSP BERTON &	10,000	5	
40	JEUNE LANDINGDR		10	
42	JACKMAN	86,000	2	$27.00
48	CRANBROOK	120,000	5	
50	ALEZA LAKE		15	
50	BEAD LAKE		2	
50	BERMAN LAKE		20	
50	CHIEF LAKE		20	
50	MCLEOD LAKE		20	
50	SUMMIT LAKE		2	
50	WEST LAKE		2	
50	CUMMINGS		2	
50	HIXON		4	
50	LOWER MUN RIVER		2	
50	WILLOW RIVER		2	
50	STONE CREEK		2	
50	SINCLAIR MILLS		80	
50	SHELLEY		10	
51			15	
53	BAILEY	500,000	11	$20.00
55	SQUAMISH LANDFI	35,000	5	
56	RICHMOND LANDFI			$7.00
58	PORT CLEMENTS		1	
58	PORT CLEMENTS 7		15	

TABLE B-25
MUNICIPAL LANDFILL SITE DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	CAPACITY (TONNES)	REMAINING SERVICE LIFE	TIPPING FEE
60	GOLDEN	60,000	20	
60	REVELSTOKE	15,000	5	
60	MALAKWA	3,720	10	
60	SCOTCH CREEK	1,700	2	
60	SKIMIKEU	12,000	8	
60	FALKLAND	1,250	5	
60	GLEN---	11,200	15	
60	SEYMOUR CREEK	400	2	
62	PEMBERTON	6,000,000	60	
62	D'ARCY DEVINE	1,000,000	50	
62	GOLD BRIDGE	4,000,000	50	
63	WANTAGE RD.		5	
67	DAWSON CREEK LA	500,000	15	
70	WILLIAMS LAKE		21	
71	MINNIES PIT	112,000	9	
73	HARTLAND	650,000	3	$11.00
74	CITY	400,000	10	
75	FORT NELSON LAN	67,500	15	
76	CEDAR ROAD	30	1	$8.00
77	MISSION FLATS	800,000	20	$6.00
77	BARNHARTVALE		20	
81	CITY LANDFILL	750,000	10	
86	PEACHLAND LANDF		14	
90	WESTSIDE LANDFI		15	
90	BEAULEAU LAKE L		10	
96	VERNON & DISTRI			
97	VALLEY LANDFILL	26,000	1	$20.00
98	BURNS BOG			$12.00
99	BURNS BOG	9,999,999	50	$16.00
100	TERRACE LANDFIL		7	
101	PREMIER ST.			
104	SLOCAN VILLAGE		2	
108	HOLBERG RD. SIT		6	
109	HOPE	2,000	1	$25.00
111	SMITHERS-TELKWA		20	
114	THORNHILL		10	
114	USK		20	
114	ROSSWOOD		20	
114	KITWANGA		15	
114	NEW HAZELTON		15	
114	ISKUT		20	
114	TELEGRAPH		20	
115	PIGEON LAKE	400,000	25	
116	FOOTHILLS	1,650,000	30	
119	DIST OF CHETWYN		3	
120			20	
121	C.R.D (100 MILE			
126	FERNIE		1	

TABLE B-25
MUNICIPAL LANDFILL SITE DATA

ID	MUNICIPALITY/ REGIONAL DISTRICT	CAPACITY (TONNES)	REMAINING SERVICE LIFE	TIPPING FEE
127	D&S		2	
128	PORT MANN	1,200,000	9	$25.00
129	BOSTON BAR			
129	NORTH BEND			
129	HOPE			

NUMBER OF LANDFILLS REPORTED = 101

TOTAL CAPACITY = 28,991,799

TABLE B-26
INCINERATOR DATA
(TONNES)

ID	MUNICIPALITY/ REGIONAL DISTRICT	MAIXIMUM DAILY CAPACITY	AVERAGE DAILY THROUGHPUT	ASH PRODUCED
40	PORT AlICE	10	4	1
72	POWELL RIVER	50	45	10
127	COWICHAN VALLEY	15	12	
127	COWICHAN VALLEY	45	40	
127	COWICHAN VALLEY	15	12	

NUMBER OF INCINERATORS REPORTED = 5

TABLE B-27
MUNICIPAL SOLID WASTE COLLECTION COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COST	COST PER HOUSEHOLD	COST PER TONNE	COLLECTION COSTS ONLY
1	OSOYOOS	$87,829.00	$62.60		1
2	TRAIL	$128,800.00	$40.36		1
4	ALERT BAY	$31,462.00	$90.67		
6	KASLO	$13,000.00	$41.27	$25.00	1
13	ASHCROFT	$48,056.00	$106.79		1
16	QUALICUM BEACH	$60,777.00	$37.99	$101.30	1
17	SUNSHINE COAST	$125,000.00	$25.00	$16.67	1
18	NANAIMO	$394,781.28	$37.14	$67.32	1
19	KELOWNA	$778,542.00	$45.00	$17.40	1
20	COURTENAY	$255,000.00	$61.46	$25.50	1
21	CUMBERLAND	$38,913.00	$52.44	$389.00	1
22	LUMBY	$19,437.00	$48.11		1
23	MACKENZIE	$108,000.00	$93.91		1
24	ROSSLAND	$90,000.00	$76.07		1
25	COQUITLAM	$781,769.00	$43.30	$45.06	1
26	SILVERTON	$6,745.00	$55.74		1
27	NELSON	$193,599.00	$58.67	$46.54	1
28	GOLDEN	$40,000.00	$40.00		1
31	KIMBERLY	$104,000.00	$37.14		1
33	ELKFORD	$106,599.00	$88.83		
35	LIONS BAY	$31,741.00	$81.39		
36	VANDERHOOF	$44,791.00	$72.25	$35.13	1
37	ESQUIMALT	$270,000.00	$90.00	$68.50	1
38	HOUSTON	$75,200.00	$90.60		
40	PORT ALICE	$40,000.00	$61.00		1
41	DUNCAN	$177,000.00	$45.05	$61.57	1
44	BURNS LAKE	$28,863.00	$57.73		1
46	HAZELTON	$15,186.00	$101.24	$17.97	1
47	COLDSTREAM	$21,206.00	$9.07	$2.08	
48	CRANBROOK	$133,000.00	$31.07		
49	PORT EDWARD	$22,000.00	$110.00		1
51	GOLD RIVER	$23,000.00	$31.51	$15.02	1
55	SQUAMISH	$109,000.00	$37.70	$14.25	1
56	RICHMOND	$1,200,000.00	$42.78	$43.00	1
57	COMOX	$93,548.00	$37.42		
61	POUCE COUPE	$15,600.00	$67.83		1
63	PRINCE RUPERT	$464,455.00	$132.47	$29.40	1
64	OAK BAY	$265,133.13	$44.19	$67.72	
65	MONTROSE	$12,100.00	$30.25		1
66	GIBSONS	$33,090.00	$36.77		1
67	DAWSON CREEK	$249,775.00	$75.69	$10.86	1
68	CHASE	$29,672.00	$43.64		
70	WILLIAMS LAKE	$150,900.00	$4.39	$.87	1
71	MISSION	$182,900.00	$36.36	$14.75	1
72	POWELL RIVER	$201,000.00	$40.20	$16.08	1
74	MERRITT	$196,350.00	$83.12	$4.91	

TABLE B-27
MUNICIPAL SOLID WASTE COLLECTION COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COST	COST PER HOUSEHOLD	COST PER TONNE	COLLECTION COSTS ONLY
77	KAMLOOPS	$690,760.00	$38.38	$35.53	1
79	LOGAN LAKE	$34,100.00	$68.20	$54.13	1
80	PORT MOODY	$418,220.00	$92.02	$91.79	
81	FORT ST. JOHN	$192,759.00	$36.42		1
82	NORTH VANCOUVER	$317,677.00	$58.72	$35.59	1
83	ZEBALLOS	$8,222.00	$92.38		1
84	LADYSMITH	$83,546.00	$54.25		1
85	CRESTON	$81,909.00	$43.57		1
86	PEACHLAND	$52,217.58	$40.16		1
88	VICTORIA	$1,817,460.00	$47.87	$41.78	1
89	NEW WESTMINSTER	$251,356.17	$35.95	$26.19	1
91	SMITHERS	$168,421.29	$44.13	$37.76	
92	PORT MCNEILL	$41,000.00	$46.59	$31.53	1
93	PENTICTON	$630,379.00	$74.16	$36.02	1
94	STEWART	$26,187.00	$62.20	$37.41	1
95	VERNON	$540,000.00	$30.00		1
97	MATSQUI	$364,029.00	$30.77	$41.14	1
98	WHITE ROCK	$367,288.00		$53.23	1
99	VANCOUVER	$5,600,000.00	$69.00	$57.14	1
100	TERRACE	$136,000.00	$56.66	$26.15	1
101	WEST VANCOUVER	$548,160.00		$51.38	
102	FORT ST. JAMES	$47,000.00	$84.00	$18.80	1
103	CLINTON	$32,521.00	$95.65		1
104	SLOCAN	$6,000.00	$37.50		1
105	WARFIELD	$30,000.00	$144.00		
107	REVELSTOKE	$175,200.00			1
108	PORT HARDY	$185,197.00	$50.00		1
109	HOPE	$117,000.00	$93.60	$58.50	1
110	CACHE CREEK	$38,956.00	$36.00	$6.49	1
111	TELKWA	$21,302.00	$78.00	$109.00	1
112	PRINCETON	$24,272.00			1
113	DELTA	$1,200,000.00	$48.00	$48.00	1
116	PRINCE GEORGE	$1,005,000.00	$25.80		1
117	UCLUELET	$37,000.00	$62.00	$62.00	1
118	GRAND FORKS	$75,733.00	$3.40		1
119	CHETWYND	$42,848.00	$39.67		1
121	100 MILE HOUSE	$25,007.00	$4.57		1
122	BURNABY	$1,752,000.00	$39.91	$41.80	1
123	PORT COQUITLAM	$418,700.00	$51.00	$45.00	1
124	SAANICH	$1,143,985.00	$44.17	$76.27	1
126	FERNIE	$130,000.00			
128	SURREY	$1,781,730.00		$34.75	1

TABLE B-27
MUNICIPAL SOLID WASTE COLLECTION COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COST	COST PER HOUSEHOLD	COST PER TONNE	COLLECTION COSTS ONLY
	RESPONDENTS TO THE QUESTION =			88	
	AVERAGE COST =		$319,965.47		
	TOTAL COST =		$28,156,961.45		

TABLE B-28
COST ITEMS INCLUDED IN COLLECTION COSTS
(1 = YES, 0 = NO)

ID	C1	C2	C3	C4	C5	C6	C7	C8	C9
1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1
4	1	0	1	1	1	1	1	1	0
6	1	1	1	1	1	0	1	1	0
13	1	1	0	1	1	1	1	1	1
16	1	1	1	1	1	0	1	1	0
17	1	1	1	1	1	1	1	1	1
18	1	0	1	1	1	0	1	1	0
19	1	1	1	1	1	1	1	1	1
20	1	1	1	1	1	1	1	1	1
21	1	1	0	1	1	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	1	1	0	1	1	0	0	0	0
24	1	1	1	1	1	1	1	1	1
25	1	1	1	1	1	1	1	1	1
26	0	0	0	0	0	0	0	0	0
27	1	1	1	1	1	1	1	1	1
28	1	1	1	1	1	1	1	1	1
31	1	1	1	1	1	0	0	0	0
33	1	1	0	1	1	0	1	1	0
35	1	1	1	1	1	1	1	1	1
36	1	0	1	1	1	0	0	0	1
37	1	1	1	1	1	0	1	0	0
38	0	0	0	0	0	0	0	0	0
40	1	1	1	1	1	1	1	1	1
41	1	1	0	1	1	0	1	1	0
44	1	1	0	1	1	0	0	1	0
46	1	1	0	1	1	1	1	1	0
47	1	0	0	1	0	0	0	0	0
48	1	1	1	1	1	1	1	1	1
49	1	1	0	0	0	0	0	1	0
51	1	1	0	0	0	0	0	0	0
55	1	1	1	1	1	1	1	1	1
56	1	1	1	1	1	1	1	1	1
57	0	0	0	0	0	0	0	0	0
61	1	1	1	1	1	0	1	1	0
63	1	1	1	1	1	1	1	1	1
64	1	1	1	1	1	0	1	0	0
65	1	0	0	1	1	0	1	0	0
66	1	1	1	1	1	1	1	1	1
67	1	1	1	1	1	1	1	1	1
68	1	0	0	1	0	0	0	0	0
70	1	1	1	1	1	0	1	1	1
71	1	1	1	1	1	1	1	1	1
72	1	1	1	1	1	0	1	1	0
74	1	1	0	1	1	0	0	0	0
77	1	1	1	1	1	1	1	1	0
79	0	0	0	1	1	1	1	0	0
80	1	1	1	1	1	1	1	1	1
81	1	1	1	1	1	1	1	1	1
82	1	1	1	1	1	1	1	0	1
83	1	0	0	0	0	0	0	0	0
84	1	1	1	1	1	0	1	1	0

TABLE B-28
COST ITEMS INCLUDED IN COLLECTION COSTS
(1 = YES, 0 = NO)

ID	C1	C2	C3	C4	C5	C6	C7	C8	C9
85	1	1	0	1	1	0	1	1	0
86	1	1	0	1	1	0	1	1	0
88	1	1	1	1	1	0	1	0	0
89	1	1	1	1	1	0	1	1	0
91	1	1	1	1	1	0	1	1	1
92	0	0	0	0	0	0	0	0	0
93	1	1	1	1	1	1	1	1	1
94	1	1	0	0	1	0	1	0	1
95	1	1	1	1	1	1	1	1	0
97	1	1	1	1	1	0	1	0	0
98	1	0	0	1	1	1	1	0	0
99	1	1	1	1	1	1	1	1	0
100	1	1	1	1	1	0	1	0	0
101	1	1	1	1	1	1	1	1	1
102	1	1	0	1	1	0	1	0	0
103	1	1	0	1	1	0	1	1	0
104	1	1	1	1	1	0	0	0	0
105	1	1	1	1	1	1	1	1	1
107	1	1	1	1	1	1	1	1	1
108	1	1	1	1	1	1	1	1	1
109	1	1	0	1	1	1	1	1	0
110	1	1	0	1	1	1	1	1	1
111	1	1	1	1	1	0	1	0	0
112	1	1	1	1	1	1	1	1	1
113	1	1	1	1	1	1	1	1	1
116	1	1	1	1	1	1	1	1	1
117	1	1	1	1	1	1	1	1	1
118	1	1	1	1	1	1	1	1	1
119	1	1	0	1	1	0	1	1	0
121	1	1	1	1	1	1	1	1	1
122	1	1	1	1	1	1	1	1	0
123	1	0	1	1	1	0	1	0	0
124	1	1	1	1	1	1	1	1	0
126	0	0	0	0	0	0	0	0	0
128	1	1	1	1	1	1	1	1	1
	81	72	58	78	77	45	70	59	39

C1 - SALARIES AND BENEFITS
C2 - WORKMAN'S COMPENSATION
C3 - CAPITAL EQUIPMENT
C4 - REPAIR AND MAINTENANCE
C5 - FUEL
C6 - CENTRAL YARD COSTS
C7 - INSURANCE
C8 - ADMINISTRATION
C9 - INTREST PAYMENTS

TABLE B-31
MUNICIPAL SOLID WASTE LANDFILL OPERATION COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COST	COST PER CU. YD.	COST PER TONNE
1	OSOYOOS	$51,968.00		
2	TRAIL	$235,000.00	$3.90	
3	MOUNT WADDINGTO	$210,000.00	$4.00	$12.00
9	THOMPSON-NICOLA	$300,000.00	$1.71	$18.75
10	SPALLUMCHEEN	$25,031.00		
11	SALMON ARM	$51,000.00	$1.85	$6.74
13	ASHCROFT	$12,786.00		
16	QUALICUM BEACH	$69,673.00		$34.00
17	SUNSHINE COAST	$100,000.00		$20.00
19	KELOWNA	$360,000.00		$6.00
22	LUMBY	$18,461.76		
23	MACKENZIE	$35,800.00		
30	MAPLE RIDGE	$256,000.00		$11.55
31	KIMBERLY	$78,811.00		
33	ELKFORD	$405,557.43		
34	KOOTENAY BOUNDA	$353,471.00	$5.00	$47.00
38	HOUSTON	$37,600.00		
39	CENTRAL KOOTENA	$624,255.00	$2.60	$20.81
42	LANGLEY	$215,000.00		$5.00
47	COLDSTREAM	$20,339.00		
48	CRANBROOK	$193,000.00		$7.72
50	FRASER-FORT GEO	$240,450.00		
51	GOLD RIVER	$13,500.00	$2.25	
53	CHILLIWACK	$554,677.00		$19.13
55	SQUAMISH	$82,000.00		$11.00
56	RICHMOND	$200,000.00		$7.48
58	PORT CLEMENTS	$6,000.00		
59	DEWDNEY-ALOUETT	$32,300.00		$77.00
60	COLUMBIA-SHUSWA	$245,000.00	$1.85	$16.50
62	SQUAMISH-LILLOO	$9,787.00		
63	PRINCE RUPERT	$23,493.00		$14.77
67	DAWSON CREEK	$109,586.00		$4.68
68	CHASE	$7,700.00		
69	MIDWAY	$3,600.00		
70	WILLIAMS LAKE	$200,180.00		
71	MISSION	$107,030.00	$2.23	$8.17
73	CAPITAL	$2,700,000.00		$16.40
75	FORT NELSON	$88,837.00		$19.75
76	NANIAMO	$342,000.00		$13.88
77	KAMLOOPS	$409,533.00		$11.35
78	BULKLEY NECHAKO	$340,000.00		
81	FORT ST. JOHN	$187,429.00		
82	NORTH VANCOUVER	$178,518.00		$20.00
86	PEACHLAND	$22,965.08		
90	CENTRAL OKANAGA	$150,013.00		
92	PORT MCNEILL	$24,000.00		$18.00

TABLE B-31
MUNICIPAL SOLID WASTE LANDFILL OPERATION COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COST	COST PER CU. YD.	COST PER TONNE
94	STEWART	$8,240.00		
96	NORTH OKANAGAN	$192,798.00		
97	MATSQUI	$520,546.00		$17.60
99	VANCOUVER	$4,000,000.00		$6.60
100	TERRACE	$48,500.00	$1.57	$3.46
106	PEACE RIVER LIA	$267,870.00		
108	PORT HARDY	$33,860.00	$1.00	
109	HOPE	$63.50	$7.94	$15.88
112	PRINCETON	$26,492.00		
114	KITIMAT-STIKINE	$87,700.00		
115	COMOX-STRATHCON	$143,978.00	$1.97	$8.73
116	PRINCE GEORGE	$180,000.00	$1.40	$3.27
119	CHETWYND	$19,965.00		
120	HUDSON'S HOPE	$3,100.00		
126	FERNIE	$63,000.00		
128	SURREY	$857,151.00		$7.26

RESPONDENTS TO THE QUESTION = 62

TOTAL COST = $16,385,614.77

TABLE B-32
COST ITEMS INCLUDED IN LANDFILL COSTS
(1 = YES, 0 = NO)

ID	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
1	1	1	0	1	1	1	1	0	1	1	1	0
2	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	0	0	0	1	0	0
9	1	1	1	0	0	0	0	1	0	1	1	1
10	1	1	0	0	0	0	0	0	0	0	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1
13	0	0	0	0	0	0	0	0	0	0	0	0
16	1	1	1	1	0	1	0	1	0	0	1	1
17	1	1	1	1	1	1	1	1	1	1	1	1
19	1	1	1	0	0	0	0	1	0	0	1	1
22	1	1	0	0	0	0	0	0	0	1	1	1
23	1	1	0	0	0	0	0	0	0	0	0	0
30	1	1	0	0	1	1	0	0	0	1	1	0
31	1	1	1	1	1	1	1	1	1	1	1	1
33	1	1	0	0	0	0	0	0	1	0	1	1
34	1	1	1	1	1	1	1	1	1	1	1	1
38	0	0	0	0	0	0	0	0	0	0	0	0
39	1	1	1	0	0	1	0	1	0	0	1	1
42	1	1	0	0	0	1	0	0	0	0	0	0
47	0	0	0	0	0	0	0	1	1	0	0	0
48	1	1	1	1	1	1	1	1	1	1	1	1
50	1	1	1	0	0	1	0	0	1	1	1	1
51	1	1	0	0	0	0	0	0	0	0	0	0
53	1	0	1	0	1	1	1	1	0	1	1	1
55	1	1	1	1	1	1	1	1	1	1	1	1
56	1	1	1	1	1	1	1	1	1	1	1	1
58	1	1	1	1	1	1	1	1	1	1	1	1
59	1	1	0	0	0	1	0	0	0	0	1	1
60	1	1	1	1	1	1	1	1	1	1	1	1
62	0	0	0	0	0	0	0	0	0	0	1	1
63	1	1	1	1	1	1	1	1	1	1	1	1
67	1	1	0	0	1	1	0	1	0	1	1	1
68	0	0	0	0	0	0	0	0	0	0	0	0
69	1	1	1	0	0	0	0	0	0	0	1	0
70	1	1	1	1	1	1	1	1	0	1	1	1
71	1	1	0	0	1	1	1	1	0	1	0	0
73	1	1	1	0	1	1	1	1	0	1	1	1
75	1	1	1	0	0	1	0	1	0	1	1	1
76	1	1	0	0	0	1	0	1	0	1	1	1
77	1	1	0	0	0	0	0	1	0	1	1	1
78	1	0	1	0	1	0	0	0	1	1	1	0
81	1	1	0	0	0	1	1	1	1	1	1	1
82	1	1	1	1	1	1	1	1	0	1	1	0
86	1	1	0	0	0	0	0	0	0	0	1	1
90	1	1	0	0	0	0	0	0	0	1	1	1
92	0	0	0	0	0	0	0	0	0	0	0	0
94	1	1	0	0	0	0	0	0	0	0	1	0
96	1	1	0	0	1	1	0	1	0	0	0	1
97	1	1	1	1	1	1	1	1	1	1	1	1
99	1	1	1	0	1	1	0	1	0	1	1	1
100	1	0	0	0	1	0	0	0	1	0	0	1
106	1	1	1	0	0	0	0	0	0	0	1	1
108	1	1	0	0	0	0	0	0	1	0	0	0

TABLE B-32
COST ITEMS INCLUDED IN LANDFILL COSTS
(1 = YES, 0 = NO)

ID	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
109	1	1	1	0	1	0	0	0	0	0	0	0
112	1	1	1	1	1	1	1	1	1	1	1	1
114	1	1	0	0	0	0	0	0	0	0	1	1
115	1	1	1	0	0	1	0	1	0	1	1	1
116	1	1	1	0	0	1	1	1	0	0	1	1
119	1	1	1	0	0	0	0	0	0	0	1	1
120	1	0	1	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0
128	1	1	1	1	1	0	0	1	0	0	1	1
	55	51	34	19	28	34	21	33	21	33	46	42

R1 - SALARIES AND BENEFITS
R2 - WORKMAN'S COMPENSATION
R3 - LAND PURCHASE AND PREPARATION
R4 - GAS COLLECTION AND CONTROL
R5 - LEACHATE CONTROL
R6 - CAPITAL EQUIPMENT
R7 - INTREST PAYMENTS
R8 - ENGINEERING COSTS
R9 - CLOSURE AND POST CLOSURE COSTS
R10 - BUILDING AND SECURITY
R11 - INSURANCE
R12 - ADMINISTRATION

TABLE B-33
MUNICIPAL SOLID WASTE INCINERATOR COSTS

ID	MUNICIPALITY/ REGIONAL DISTRICT	TOTAL COSTS	COST PER TONNE
40	PORT ALICE	$19,060.00	
72	POWELL RIVER	$190,000.00	$15.00

RESPONDENTS TO THE QUESTION = 2

TOTAL COSTS = $209,060.00

TABLE B-34
COST ITEMS INCLUDED IN INCINERATOR COSTS
(1 = YES, 0 = NO)

ID	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10
40	1	1	1	1	0	0	0	0	0	1
72	1	1	0	1	0	0	1	0	1	1
	2	2	1	2	0	0	1	0	1	2

C1 - SALARIES AND BENEFITS
C2 - WORKMAN'S COMPENSATION
C3 - LAND PURCHASE AND PREPARATION
C4 - INCINERATOR AND ANCILLERY EQUIPMENT
C5 - POLLUTION CONTROL EQUIPMENT
C6 - ENGINEERING COST
C7 - ASH DISPOSAL
C8 - INTREST PAYMENTS
C9 - ADMINISTRATION
C10 - INSURANCE